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UNUNITED FRACTURES *

MELVIN S. HENDERSON, M.D.

ROCHESTER, MINN.

Ununited fractures are those that have failed to unite by bony union after the period normally required for repair. They may be divided into those of delayed union, and those in a fixed state of nonunion.

Delayed Union.—Delayed union may be defined as a condition in which clinical and roentgenographic examination show that repair is going on slowly although the fracture is still ununited. As the fracture is gently manipulated, varying degrees of solidity and stiffness, and thickening due to the callus, may be noted. The roentgenogram often shows a large amount of callus; in fact, the fracture line itself may be partially obscured by this callus. The bones are generally of normal density, and one would usually hesitate to pronounce these cases ununited fractures from the roentgenogram alone (Fig. 1).

Nonunion.—Nonunion may be said to exist when physical examination and roentgenographic study indicate that the fracture is still ununited and that there is no attempt at repair. The patient may be able to flop the part about at will, and on physical examination a typical false joint is found. On palpation no callus can be felt, and the stiffness and semirigidity encountered in delayed union are absent. The roentgenogram usually discloses an osteoporosis of the fragments with clear cut, often rounded ends, and there is no callus to give the hazy appearance to the fracture area, as in delayed union (Fig. 2). The longer the fracture has been ununited, the more likely it is to be a case of nonunion, but time is not the sole criterion. As will be seen in this series, the average time between the sustaining of the fracture and the operation was six months in cases of delayed union, and two years in cases of nonunion. Practically all cases of nonunion have once been cases of delayed union, and it is at the transitory point or period that definite classification is difficult. But in a group of cases of ununited fracture in which operation is to be performed, a definite classification can usually be made, as the doubtful period generally either has been passed or has not been reached.

In many instances it is difficult to determine why a fracture does not unite. Therefore, in studying these cases, I assigned in each instance, whenever possible, the one outstanding cause of failure to unite, and by tabulating these data obtained certain accurate information. Two hundred and fifty-nine patients with ununited fractures of the shafts of the long bones and of the hips have been operated on at the Mayo Clinic during the six years from Jan. 1, 1919, to Jan. 1, 1925. The tabulated records were divided into those of delayed union, ninety-six cases, and those of nonunion, 135 cases, in the shaft of the bones. The twenty-eight cases of nonunion of the hip have been considered separately except as to end-results.

Ununited fractures, as a rule, occur in healthy, robust persons; constitutional disease, such as syphilis, is practically never responsible. The paradox is encountered in the prompt union of many fractures in the frail, anemic patient with fragilitas ossium, while a single fracture in a normal, healthy man may fail to unite. A pathologic fracture, due to metastatic carcinoma, sometimes unites quickly, although the patient succumbs to the malignant disease.

TABLE 1.—*Summary of Two Hundred and Fifty-Nine Cases of Ununited Fracture*

Males	220
Females	39
Between the ages of 20 and 49 years, per cent.	81
Originally compound, per cent.	35
Originally simple, per cent.	65

Treatment	Per Cent.
Bone grafts	56.3
Plastic	23.2
Removal of sequestrums	13.5
Metal	4.0
Manipulations	3.0

	Delayed Union	Nonunion	Total
Humerus	10	35	45
Ulna	4	6	10
Radius	2	20	22
Radius and ulna	17	14	31
Tibia	52	40	92
Shaft of femur	11	20	31
Hip	..	28	28
Total	96	163	259

SUMMARY OF DATA IN TWO HUNDRED AND FIFTY-NINE CASES OF UNUNITED FRACTURE

There were 220 males and thirty-nine females in this series (Table 1). The ages by decades were: from 10 to 19, sixteen cases; from 20 to 29, seventy-five; from 30 to 39, eighty-one; from 40 to 49, fifty-four; from 50 to 59, twenty-nine, and from 60 to 69, four. In other words, 210 (81 per cent.) of the patients were between 20 and 49 years of age. Patients under 10 years have not been included in the study as I believe that they demand separate consideration. In ninety-three (35 per cent.) of the cases, the fractures were originally compound; in 166 (65 per cent.), simple.

* From the Section on Orthopedics, Division of Surgery, Mayo Clinic.

* Read before the Section on Orthopedic Surgery at the Seventy-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., May, 1925.

In ninety-six cases (35 per cent.) the condition was classified as delayed union, of which thirty-two had been originally compound and sixty-four, simple. There were in reality 163 cases of nonunion, but since twenty-eight of these were fractures of the hip, it was deemed unfair to include them in the comparison of certain phases of the question in which the shafts of the bones were concerned, as operation was not performed in cases of delayed union of the hip.

TABLE 2.—*Bone Grafts*

	Delayed Union				Nonunion				Total Traced	Total Cured
	Cases	Cured	Failed	Not Traced	Cases	Cured	Failed	Not Traced		
Humerus	4	4	..	..	26	20	5	1	29	24
Ulna	1	..	1	..	2	2	..	..	3	2
Radius	2	2	..	..	15	12	2	1	16	14
Radius and ulna	10	10	..	..	6	4	1	1	15	14
Tibia	25	24	1	..	25	22	1	2	48	46
Femur	1	..	..	1	8	5	3	..	8	5
Hip	..	..	..	..	22	16	5	1	21	16
Total	43	40	2	1	104	81	17	6	140	121

Bone graft was done in 147 of 259 cases (56 per cent.); delayed union, 42 cases traced, 40 cured (95.2 per cent.); nonunion, 98 cases traced, 81 cured (82.7 per cent.); ununited (combined), 140 cases treated, 121 cured (86.4 per cent.).

All of the 259 patients were treated surgically. In 147 (56.2 per cent.), some form of the bone graft was used, usually the massive graft (Table 2). In the cases of delayed union, ninety-six in all, a graft was used in forty-three. The end-result was ascertained in forty-two; forty patients (95.2 per cent.) were cured. In 163 cases of nonunion, the bone graft was used in 104. Eighty-one (82.6 per cent.) of the ninety-eight patients traced were cured. In 140 traced cases of both delayed union and nonunion, and in which the bone graft was used, 121 patients (86.4 per cent.) were cured. In twenty-two cases of nonunion of the hip, bone grafts were used, usually from the fibula; twenty-one patients were traced, sixteen of whom were cured, bony union having resulted. In fifty-five cases, exclusive of the hip, thirty-two of delayed union, and twenty-three of nonunion, some form of plastic operation was carried out to reshape and fit the bony surfaces (Table 3),

TABLE 3.—*Plastic Operations, Beef-Bone and So Forth*

	Delayed Union				Nonunion				Total Traced	Total Cured
	Cases	Cured	Failed	Not Traced	Cases	Cured	Failed	Not Traced		
Humerus	2	2	..	..	4	3	1	..	6	5
Ulna	2	1	1	..	4	2	1	1	5	3
Radius	..	..	..	..	1	..	1	..	1	..
Radius and ulna	5	5	..	..	5	3	1	1	9	8
Tibia	19	17	..	2	5	5	..	..	22	22
Femur	4	3	1	..	4	..	3	1	7	3
Total	32	28	2	2	23	13	7	3	50	41

Delayed union, 93.3 per cent. cures; nonunion, 65 per cent. cures; ununited (combined), 82 per cent. cures.

gaining as much contact of fresh healthy bone as possible and maintaining this by whatever means was considered best, such as beef-bone plates, beef-bone screws, catgut, or any absorbable material other than an autogenous or homogenous bone graft.

Fifty of these patients were traced, and forty-one (82 per cent.) obtained union. Ninety-three per cent. of the patients with delayed union were cured, whereas only 65 per cent. of those with nonunion were cured, a poor showing when compared to 82.6 per cent. of cases in which the bone graft was used. Five of the patients with fracture of the hip were not considered satisfactory subjects for bone grafting, owing to absorption of the neck of the femur. They were therefore subjected to the plastic operation of either Brackett or Whitman, making a total of sixty plastic operations (23.1 per cent. of the total). Satisfactory functional results with good weight-bearing properties were obtained in these selected cases.

In 13.5 per cent. of the total series, an operation was performed to remove sequestrums, plates that were ineffectual in septic beds, and foreign bodies, and to curet sinuses, and so forth. In ten cases (4 per cent. of the total), a metal plate or band was used. It is noteworthy that nine of these were fractured femurs. In nine (3 per cent. of the total), manipulations were done to correct deformities in delayed union with malposition.

ETIOLOGY

The outstanding point noted in the records of cases of ununited fracture is the great number of severe contusing, crushing, twisting, devitalizing direct injuries

TABLE 4.—*Etiology (Exclusive of the Hip)*

	Severe Injury Associated with Compound Fracture		Severe Injury Associated with Simple Fracture		Inadequate Fixation		Poor Reduction, Malposition		Metal		Indeterminate	
	Nonunion	Delayed Union	Nonunion	Delayed Union	Nonunion	Delayed Union	Nonunion	Delayed Union	Nonunion	Delayed Union	Nonunion	Delayed Union
Humerus	15	2	5	2	9	5	..	..	2	1	4	..
Ulna	..	..	2	3	3	1	..	..	..	..	1	..
Radius	4	..	8	1	..	1	6	..	2	..	..	..
Radius and ulna	5	5	5	9	..	..	2	2	..	..	2	1
Tibia	21	7	6	10	4	..	..	15	3	1	6	19
Femur	2	1	3	2	..	..	8	7	1	1	6	..
Total	47	15	29	27	16	7	16	24	8	3	19	20
	62		56		23		40		11		39	
	118				63							

that were sustained at the accident. The causes are tabulated under the following headings: (1) severe injuries, associated with compound fractures; (2) severe injuries, associated with simple fractures; (3) inadequate fixation; (4) poor reduction, with consequent malposition, interposition of muscle, and so forth; (5) metal plates perhaps improperly applied, and (6) indeterminate (Table 4).

In 118 of the 231 cases, the single outstanding etiologic factor was the severe direct injury, so severe that there was no question as to its importance in the devitalization of the tissues. Crushing injuries, and twisting of the extremity in a wheel or belt, were common. Sixty-two of these severe injuries were associated with compound fractures, and fifty-six with simple fractures. Forty-seven compound fractures were encountered in the cases of nonunion, whereas only fifteen were in the delayed union group, showing that severe injuries with compound fractures are prone to lead to nonunion. A severe injury with a simple fracture appeared responsible in fifty-six cases of ununited fracture, twenty-nine in the nonunion, and twenty-seven in the delayed union group. In twenty-three cases inadequate fixation seemed to play a part, sixteen in cases of

nonunion, and seven in cases of delayed union. Poor reduction, due to various causes, often clearly no fault of the surgeon, with malposition of the bone and interposition of muscle or fascia, and so forth, seemed responsible for the condition in forty cases: sixteen of nonunion and twenty-four of delayed union. The introduction of metal in the form of a plate, bands or wire was considered to be the cause in only eleven cases; it was usually due to faulty placing of the metal rather than to its presence. In thirty-nine cases, I was unable to pick out any one factor prominent enough to be charged with the cause; in a small number of this group the fracture simply refused to unite with no apparent reason, and in others sepsis following operation may have been the factor; in fact, a number of indeterminate causes seemed more or less responsible.

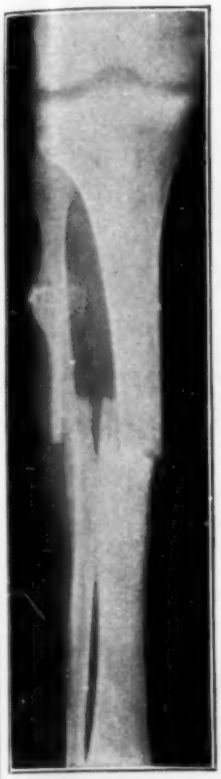

Fig. 1.—Delayed union of tibia and fibula.

It is of interest that approximately 50 per cent. of the entire group of patients had been the victims of severe direct injury and that more than half of these (25 per cent. of the total) had been associated with compound fractures. Of the entire number, ninety-three (35 per cent.) were originally compound fractures, but some of these were not associated with especially severe injuries. I believe that the trauma was much more responsible for the condition than the compound fracture, for many of the wounds healed immediately. Nevertheless, compound fractures are usually associated with severe trauma. The insult and damage to the tissue are so great that, no doubt, nerves are devitalized, and blood vessels injured and destroyed, with a consequent sluggishness on the part of the bone and tissues to respond to call for repair. It often happens that, after the normal period for repair, every one becomes concerned, and the frequent examinations and manipulations to see whether any progress is being made may well be a factor in the persistence of the ununited fracture.

TABLE 5.—*Site of Fracture*

	Upper Third		Middle Third		Lower Third		
	Nonunion	Delayed Union	Nonunion	Delayed Union	Nonunion	Delayed Union	Total
Humerus	9	2	16	6	10	2	45
Ulna	5	2	1	..	..	2	10
Radius	..	..	5	2	15	..	22
Radius and ulna	1	2	8	10	5	5	31
Tibia	4	5	16	18	20	29	92
Femur	8	2	9	6	3	3	31
Total	27	13	55	42	53	41	231
	40		97		94		

The local blood supply to the fragments is doubtless significant. The nutrient vessels enter in the middle third of the shaft and may be damaged at the time of the accident. In the 231 ununited fractures of the shaft of the long bones (Table 5), forty were in the upper third, ninety-seven in the middle third, and ninety-four in the lower third. This loses some of its significance, however, when it is recalled that most fractures occur in the middle and lower thirds of the long bones. Sixteen cases of nonunion of the humerus were in the middle third, ten in the lower third, and nine in the upper third. There were five cases of nonunion of the ulna in the upper third, one in the middle third, and none in the lower third. In the radius, there were no fractures in the upper third, five in the middle third, and fifteen in the lower third. In the radius and ulna, double cases of nonunion, one was in the upper third, eight in the middle third, and five in the lower third. In the tibia, four fractures occurred in the upper third, sixteen in the middle, and twenty in the lower third. In the femur eight fractures occurred in the upper third, nine in the middle third, and three in the lower third. In one fourth of the cases (Table 4), inadequate fixation, or a poor reduction with malposition was the most prominent etiologic factor.

In the cases of fracture of the hip, the outstanding cause was inefficient treatment in every case, so far as could be determined. In many instances, no diagnosis had been made, because the patient had not called a physician, or because the physician did not find signs sufficient to establish a diagnosis of fracture, and roentgenograms were made too late. In other instances the patient had refused to submit to the protracted fixation advised. None of the twenty-eight patients with fracture of the hip gave a history of anything approaching adequate reduction and fixation. Undoubtedly many impacted fractures of the hip unite without treatment, but if they break down under the "no fixation" or "let alone" method, they go on to nonunion.

Fig. 2.—Typical nonunion in the lower third of the humerus.

As I have stated, general or constitutional causes are not important factors in the etiology of ununited fracture. For many years, surgeons have given, empirically, various drugs, hoping to induce union in ununited fractures; even the so-called glandular therapy has not been overlooked. The study of calcium metabolism is fraught with many difficulties. Rarely is there a deficiency in calcium intake, but there may be a definite lack of assimilation, or of ability to deliver it properly to the site of fracture. The information gained from the important work on calcium and phosphorus in connection with rickets, instigated chiefly by

the work of McCollum [1] and his co-workers, has been applied in the study of fractures. It has been found that growth and proper bone deposits do not occur in the rachitic child until the product obtained by multiplying the calcium and phosphorus content in milligrams for each 100 c.c. of blood serum reaches a certain level. The normal ratio is accepted as about 10 mg. of calcium for each 100 c.c. of blood serum, and approximately 3.5 mg. of phosphorus for each 100 c.c. of blood serum, their product being 35 mg., which is considered approximately normal. If there were only 8.5 mg. of calcium and 3.1 mg. of phosphorus the product would be 26.3 mg., and probably the fracture would not unite. Petersen [2] has applied this finding to fractures, believing that unless this product reaches 35 the fracture will not unite.

Several hundred tests of this hypothesis have been made in this series of cases, usually several being made on each patient subjected to the test. It is, however, difficult to make any definite deductions. The test is very delicate, and errors are likely to occur. Any departure from the normal must be checked often, and special precautions are necessary to eliminate errors. In the carefully controlled cases when the product was abnormally high, union was rapid, and when it was low, union was slow. When there was a low product a certain degree of osteoporosis was noted in the roentgenogram; we know this to be detrimental to rapid repair. In the cases of nonunion of long standing when callus formation was at a standstill, there was rarely any departure from the normal. The test should be made in each case of ununited fracture, if practicable. If the calcium and phosphorus content of the blood can be raised by any means, it is more likely that union will be more readily obtained in such cases. Proper diet and medicine, such as cod liver oil with phosphorus and calcium lactate, may help. Recent renewed interest in the extract of the parathyroid gland as a therapeutic agent is of interest.

Fig. 3 (same case as Figure 2).—Massive graft fourteen months after application, showing absorption of beef-bone screws.

TREATMENT

The bone graft, usually the massive type [3] (Fig. 3), was used in more than half of this series of cases, in a little less than half of the cases of delayed union, and in 64 per cent. of those of nonunion. In view of the great value of the bone graft and the success following its use, one would expect it to be used even more often, but the graft must be applicable to the individual case; the case must not be made to conform to the method. In certain situations, the bone graft is clearly the method of choice, in others it is not. In this series of cases, operations were performed not only to cure the condition but merely to pave the way for future reconstructive surgical treatment, in certain cases. As an illustration, thirty-five patients were operated on in an attempt to clean up a septic condition. In studying these cases I was somewhat surprised to find that more metal plates had been used for ununited fracture of the shaft of the femur than bone grafts. This is explained by the great tendency for the thigh to bow after operation and the consequent urge to the surgeon to apply firm internal fixation. In nine cases of fractured femur, metal plates were applied after the fragments had been exposed and the ends fitted under considerable tension to overcome shortening. This operation was successful in eight cases. With a short cast on the thigh, under traction by aid of a Thomas splint fastened to the foot of the bed, it is easier to maintain position without bowing, provided the extension is maintained and thus the autogenous bone graft may be substituted for the metal plate. However, the good results obtained with the metal plate make one wonder whether the bone graft is really imperative. The chief objection to the metal plate is that it is a foreign body; but when it is well protected by a thick layer of muscle, as in the thigh, it rarely gives trouble. It can be removed after union has been secured; this is explained to the patient, and its removal is more or less optional.

The plastic type of operation was successful in cases of delayed union, but less successful in cases of nonunion. Barring exceptional instances, the bone graft is without doubt the best means of treating a nonunion.

SUMMARY

Fractures produced by direct injury, whether simple or compound, in which the trauma is sufficient really to injure and devitalize the tissues, are more prone to become ununited than are those in which the trauma is not so severe. Usually the trauma is most severe with compound fractures; this was true in the cases of this series, and accordingly there were more cases of nonunion than delayed union with this type of compound injury. General systemic conditions were negative from clinical study alone. Local causes are far more significant in the development of ununited fractures than general or systemic causes, but the chemical analysis of the blood to determine the calcium and phosphorus content was suggestive in a small number of cases. This test is a delicate one, and abnormal readings must be carefully checked by further tests before being accepted. If the calcium and phosphorus content of the blood serum could be raised above normal for any length of time, it is possible that, in cases of delayed union, union might be induced, but cases of fixed nonunion would probably not be benefited.

The bone graft is of the greatest service, and without it, it would not be possible to obtain cures in 93 per cent. of delayed union, and in 82.6 per cent. of nonunion, or in 86.4 per cent. of cases of ununited fracture

1. McCollum, E. V.; Simmonds, Nina, et al.: Studies on Experimental Rickets, VIII, The Production of Rickets by Diets Low in Phosphorus and Fat-soluble A, J. Biol. Chem. **47**: 507-527 (Aug.) 1921.
2. Petersen, H. A.: A Clinical Study of Ununited Fractures, with Special Reference to the Inorganic Bone-Forming Elements in the Blood Serum, J. Bone & Joint Surg. **22**: 885-901 (Oct.) 1924.
3. Henderson, M. S.: Nonunion in Fractures: The Massive Bone Graft, J. A. M. A. **81**: 463-468 (Aug. 11) 1923.

when the two are grouped together. The bones in cases of delayed union are more easily induced to unite than in cases of nonunion, as shown by the fact that with the plastic type of operation there were 93 per cent. of cures in cases of delayed union, whereas in cases of nonunion there were only 65 per cent. of cures. The distinction between delayed union and nonunion should be borne in mind in treating ununited fractures. In this series, certain fractures were considered as delayed unions one and one-half years after the accident, whereas others in the hip were considered as nonunions after three months, and in certain fractures of the shaft after four months. The average duration of the nonunions before operation was two years. By recognizing this difference, and by putting forth greater effort and more care in the planning and execution of operations for nonunion, a higher percentage of cures has been obtained than heretofore.

ABSTRACT OF DISCUSSION

DR. P. D. WILSON, Boston: Dr. Henderson has made two essential points, one with reference to treatment, and the second with reference to etiology. In etiology, he makes the point of severe violence, and it is interesting to see what a high percentage of compound fractures have entered into the production of these nonunions. It is a much higher percentage than I expected to find. The theory finds a certain amount of support. However, comminuted fractures are, as a rule, thought to be the result of severe violence and usually at least we expect that they will unite readily. Then, too, often in an ununited fracture the distal fragment is greatly atrophied, and that seems to lend support to the theory that circulatory change is present. The only difficulty here is that atrophy of itself means that there must be some circulation, or the atrophy could not take place. A dead bone remains dense; it does not atrophy and lose lime salts. I think that there is about the usual incidence of poor fixation and reduction entering into these nonunions. Too much traction often leads to nonunion. Dr. Henderson has had a very high percentage of cures, and I compliment him. The main thing we have to do about treatment is to decide early in the treatment of acute cases whether they are going to come to nonunion. Dr. Henderson's figures show clearly that the longer nonunion persists the more difficult it is to cure by any form of operation. If at the end of three or four weeks there is more mobility than one would expect, and there exists frank crepitus, even though we may say that the case is going to be only one of delayed union, it is worth while to anticipate the possible disastrous results of nonunion by operating. The chance of preventing nonunion is so great as to counterbalance the risk of operation, when properly done. The septic ununited fractures present a great problem from the surgical standpoint. Many of them come to amputation. I think we are rather prone to adopt a radical form of treatment there, when it is possible often to do something conservative. I have had some experience in doing the so-called plastic operation, as Dr. Henderson calls it. If that is done and the wound left wide open, and if the Carrel-Dakin treatment is started immediately, the danger is not great. Many of those cases can be conserved and saved which now go on to nonunion.

DR. W. C. CAMPBELL, Memphis, Tenn.: Ununited fractures are more common today than before, because we have more fractures to deal with. I agree with Dr. Henderson that severe trauma is an important etiologic factor. Multiple fractures might be added to the list of causative agents. In many cases, several bones are fractured, as in automobile accidents. In many cases we often find union at two or three points, and perhaps at one point there will be no union. This is a question of the demands of nature on callus output. Another element from which much damage may accrue is roentgen-ray interpretation in inexperienced hands. Frequently the physician will obtain a picture that is not absolutely satisfactory to him, and he begins to manipulate, adding insult to injury. He having failed, the patient is taken to a surgeon, who does an open operation, and adds further insult by tearing the periosteum and separating the bone from the soft parts. In the treatment of ununited fractures, I regard the massive graft as the method of choice. This cannot always be accomplished without the aid of hardware. Sometimes the graft must be supplemented by silver wire to maintain solid fixation, particularly in the femur, where there is extreme osteoporosis. The operation must be undertaken with a great deal of care. It requires a considerable amount of experience. It is a very dangerous operation, particularly in the upper third of the femur, and should not be undertaken lightly. Osteoporosis in ununited fractures, I have attempted to treat by massage and physiotherapy, but when nonunion was present I have never been able to produce the slightest change in the bone by any such treatment. In doing the operation, many operators tear the periosteum loose from the entire circumference of the bone. This should be avoided. We should conserve the circulation. I have also transplanted, in addition to the massive graft, spongy bone wherever it was available. I have found that this is a very active proliferative agent and I believe it will aid in inducing union.

DR. WALTER G. STERN, Cleveland: I quite agree with Dr. Henderson in many of his points, but I am going to ask him two questions to clear up some of the things that have arisen in my mind. He does not tell us whether he distinguishes in his treatment between the group of delayed union and the group of real nonunion. I believe it is an axiom in surgery that a majority of the cases of delayed union of from three to six months' standing will heal when the part is actively used. In these cases, walking casts and walking caliper splints have yielded very good results in my own hands. But other forms of treatment have also proved of benefit. In several cases of severe comminuted fractures in which the delayed unions were treated by stimulating doses of the roentgen ray, given once in three weeks or once a month, consisting approximately of one tenth of a skin unit, union occurred rather readily. One case of delayed union of the humerus, for which we made a splint with a joint at the elbow, came to good, firm, bony union after three treatments with the roentgen ray. I agree with Dr. Wilson that the ordinary compound fracture does not often result in nonunion. Dr. Henderson did not especially ascribe any particular form of compound fracture as the cause of this nonunion, nor does he mention that the compound fractures quoted in his tables were extensively operated on, but I believe that Dr. Campbell has struck the keynote in this work. When one operates in these cases, one must not tear away the periosteum and do great damage to the tissues in the neighborhood, and it seems to me, from the methods that I have seen and read about, some of which are advocated by members of our own section, that the violence of the treatment and the infection often following early operative intervention in compound fracture is more often the cause of the final nonunion than the compound fracture itself.

DR. FRANK WARNER, Columbus, Ohio: My limited experience has forced me to the conclusion that the severe injuries have resulted more frequently in delayed union, if not in final nonunion. In some of these cases in which there has been such severe injury at the time of operation, when forced to this operation by lack of union, I have found the interposition of muscle or of fascia to have been responsible for its production. One of the speakers referred to the more frequent prevention of union in the presence of septic infection. This is doubtlessly true. Yet sometimes I have been surprised at the rapidity with which union took place, even in the presence of severe infection. Too much tension produced by Thomas' splint seemed in one case to be a responsible factor. Poor fixation has long been regarded as a cause of nonunion, and even with poor fixation sometimes I have seen rapid union. With the method that has been in use for

a good while, which was referred to by Dr. Stern—that of walking in these cases of nonunion and in that way producing union—it would make one begin to doubt whether the poor fixation was always the responsible cause, or whether it was a simple coincidence. In the operation in these cases, it seems to me that the use of live bone is the preferable method, and this live bone placed in a way that will secure good constant contact with the bone with which it is placed. Not only that, but the ends of the bones must be so thoroughly cleared back that union will occur by the aid of the new bone that is placed in this position.

DR. M. S. HENDERSON, Rochester, Minn.: Many points mentioned in the discussion will probably be cleared up on reading the paper. I did not have time to cover them all in presenting it. I felt quite confident that the high percentage of compound fractures would surprise many. We can largely disregard the compound part of the injury. After all, it was the injury itself, the severe type of injury, with the consequent trauma to the bone, blood vessels, nerves, and all, that was the real factor. Many of these compound fractures healed without any infection. Dr. Wilson mentioned the high percentage of cures that we have. We have increased our percentage of cures by paying attention to technic. My respect for resistance and difficulty in handling nonunions has increased a great deal in the last ten years. We must approach them with care as one would a worthy foe, and we prepare in every way to handle the situation. It is the differentiation into the two groups of delayed union and nonunion that has enabled us to increase our percentage of cures. We recognize the bad cases and are more careful with them. I did not mention, in reading my paper, the hip cases. The etiology in every case, as far as I could make out, was that no adequate treatment had been instituted early. Dr. Stern mentioned the treatment of the delayed union and nonunion by conservative measures; that is, the use of weight bearing, etc. Those may all be used, but in the paper I drew attention to the fact that the delayed unions could be induced to unite more easily than the nonunions, and it is in the former that good results are obtained by conservative measures. The mention of the roentgen-ray treatment is interesting, but the roentgen ray has been advocated in so many different forms of diseases and praised generally much more than it deserves that I am inclined to believe that any credit given the roentgen ray in the treatment of fractures should be looked on at least with suspicion.

Fig. 1 (Case 3).—Eruption devoid of tumors.

Psychologic Tests for Students.—Psychologic tests were recently made of Harvard and Radcliffe college students by Dr. Abraham A. Roback of Harvard University. The tests were based on relative speed in observation, deduction, mental application, and interpretation. It was found that the girls scored higher than men, the Harvard men showing an average of 50.5 per cent. in tests given 107 students, while the Radcliffe girls had a 55 per cent. average on tests of thirty-seven girls. Dr. Roback stated that the higher mental average shown by the girls is to be explained by the fact that greater discrimination is exercised in sending girls to colleges.

RECKLINGHAUSEN'S DISEASE WITHOUT TUMOR FORMATION

INCOMPLETE OR ABORTIVE FORMS OF THE DISEASE *

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In 1882, Recklinghausen published a description of the disease now called neurofibromatosis cutis or fibroma molluscum multiplex. This clinical entity is so well known and so well described in textbooks and monographs that a description of the usual forms of the affection is superfluous.

Recklinghausen's work was based on well developed examples of the disease, in patients who presented the usual characteristic tumors, nevi, lentigines, large pigmented areas, and small bluish macules. His monograph made no mention of anomalous and incomplete forms of the disease, such as those in which the characteristic pigment lesions exist, but which differed from the "classic" forms in that there is a complete absence of tumors or other elevated lesions, in the skin or beneath the skin.

Attention was first directed to this incomplete or abortive form by Parkes Weber [1] in 1905, in which year he presented such a patient before the Dermatological Society of London. He described this case fully in an article in 1909. W. B. Trimble [2] reported a similar instance in an article published in 1911, and in 1921 Oscar Levin [3] also called attention to the subject.

The presentation before various dermatologic societies of patients who exhibited only cutaneous pigmentations has occasioned discussions as to the propriety of naming such cases Recklinghausen's disease.

Obviously, an eruption devoid of visible or palpable tumors can be called neither neurofibromatosis nor molluscum fibrosum. Cases of Recklinghausen's disease manifested only by pigmentation are most apt to occur among families in which one of the parents and the offspring are affected. It is well known that in a certain proportion of cases the malady is hereditary, and often several members of a family are victims of the disease. One of our patients was a woman who had

* Read before the Section on Dermatology and Syphilology at the Seventy-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., May, 1925.

1. Weber, F. P.: Cutaneous Pigmentation as an Incomplete Form of Recklinghausen's Disease, Brit. J. Dermat. **21**: 49, 1909.
2. Trimble, W. B.: Remarks on Neurofibromatosis, New York, M. J., Feb. 25, 1911.
3. Levin, O. L.: Recklinghausen's Disease: Its Relations to the Endocrine System, Arch. Dermat. & Syph. **4**: 303 (Sept.) 1921.

many typical tumors and pigment spots, while her young daughter, whose skin was free of visible or palpable tumor formations or other gross cutaneous lesions, nevertheless exhibited countless freckles all over the trunk, together with large café-au-lait spots and bluish macules of varying size and outline. The mother had a frank neurofibromatosis cutis, while the daughter's lesions were the early manifestations of Recklinghausen's disease. True, the daughter might or might not develop tumors and other lesions of the disease, later in life; but the diagnosis is made at the moment of presentation, without regard to probable or possible future developments in the course of the affection.

The fact that several colleagues of ripe experience disagreed with this view led us to consult the literature on the subject, with the result that many references tending to substantiate Weber's original contention were brought to light.

REVIEW OF THE LITERATURE

Darier[4] states that numerous incomplete cases occur in which either the tumors of the nerves or the pigmentations, etc., are absent. The pigmentations are of such characteristic appearance, especially as regards their distribution on the trunk, that when they are the only symptoms present, a diagnosis of Recklinghausen's disease is sometimes justified.

Ormsby quotes Parkes Weber,[5] who believes, in common with a few others, that there are anomalous cases of Recklinghausen's disease in which the pigmentary are the only changes, at least for certain periods of time. In the case as originally reported by Weber, only pigment was present; in the later report of the same patient, tumor formations had begun. Graham Little[6] reported a typical case in which the pigmentations preceded the tumor formations by six years.

Andueza[7] demonstrated a woman, aged 26, with subcutaneous tumors and pigment spots on the trunk. There were six brothers and sisters. The skin of the mother and that of the grandfather presented only pigmentations; there were no tumors. One sister of the patient had only subcutaneous tumors.

Fig. 2 (Case 3).—Eruption devoid of tumors.

Adrian and Huegel[8] reported two cases of the disease with irregular disseminated patches of pigmentation, without tumors or nerve involvement. One of the patients subsequently developed about a dozen tumors the size of peas, situated on the chest and thighs.

Acuna and Bazon[9] reported two examples of the disease; one of these was typical, in a girl aged 12; the other, a boy, aged 11, had pigmentations as the only symptoms of the affection.

Roederer[10] demonstrated a woman, aged 49, with typical neurofibromatosis cutis. The patient's daughter presented numerous café-au-lait pigmentations, but the skin was free of tumors. Both patients had evidences of suprarenal disturbances.

Uberschar[11] reported the case of a sailor, aged 17, with typical neurofibromatosis. The pigmented spots appeared in early childhood, but the tumors first began to develop only in the past two years.

Leschke[12] described a case in a woman, aged 32, in whom many pigmented spots began to appear on the body at the age of 5, the number of spots increasing rapidly especially in the last five years. These spots appeared in the form of macular and bandlike pigmentations of café-au-lait color. Roentgenograms revealed hypertrophy of the suprarenals. There was a mild form of psychic aberration, manifested as infantilism. The patient's eruption was considered in the light of a peculiar variant of Recklinghausen's disease, representing the type of lesions in which the designation neurofibromatosis or fibroma molluscum multiplex was not adaptable. The name Recklinghausen's disease was considered to be appropriate, for it embraced the varied clinical symptoms which that condition may manifest.

Hoekstra[13] stated that neurofibromatosis is associated with abnormal pigmentations in more than half the cases described in the literature, and that in those of the familial type, the pigmentations alone should be interpreted as being equivalent to Recklinghausen's disease.

Langer and Gumpert[14] recently published a study of four cases, each of which demonstrated the different stages of development of the affection. The first patient, a girl, aged 21, presented only pigmentations of different varieties—yellowish freckles, brownish and café-au-lait spots, and dark brown mole-like lesions scattered on the face and trunk. There were no "blue spots" and no tumor formations. Similar examples have been reported by Thibierge, Vignolo-Lutati, Schall, Audry, Salomon, Lange and Jadassohn. In Hirsch's patient, pigmentations were present since birth, but tumors appeared only at the age of 14. In Feindl's patient, a woman whose skin was studded with pigment spots, the first tumor appeared after childbirth, the mother being 18 years old at the time. In Thibierge's patient, a girl, aged 22, only the characteristic pigment spots were present, but she also exhibited the mental and physical stigmas of the disease. Vignolo-Lutati's patient had the "blue spots" but no tumors. One of Schall's patients, a boy, aged 6, had only widespread

4. Darier: Dermatology, Translated by S. Pollitzer, Philadelphia, Lea and Febiger, 1920, p. 668.
5. Weber, F. P.: Brit. J. Dermat. **17**: 226, 1905; Cutaneous Pigmentation as an Incomplete Form of von Recklinghausen's Disease, **21**: 49, 1909.
6. Little, E. E. G.: Brit. J. Dermat. **20**: 413, 1908.
7. Andueza, P. H.: A Case of von Recklinghausen's Disease with Endocrine Disturbances, Med. ibera. **16**: 241, 1922.
8. Adrian, C., and Huegel, G.: The Abortive Types of Recklinghausen's Disease, Ann. de dermat. et de syph. **7**: 152 (May) 1919.
9. Acuna and Bazon: Arch. latino-americ. de pediat. **16**: 487, 1922.
10. Roederer, J.: Bull. Soc. franç. de dermat. et de syph. **2**: 17, 1922.
11. Uberschar: Berl. dermat. Gesellsch., Sitting 5, Feb. 14, 1922.
12. Leschke, E.: Med. Klin. **18**: 911, 1922.
13. Hoekstra, G.: Virchows Arch. f. path. Anat. **237**: 79, 1922.
14. Langer and Gumpert: Arch. f. Dermat. u. Syph. **144**: 277 (Aug.) 1923.

pigment spots of characteristic appearance and distribution. Audry reported the case of a man with well developed neurofibromatosis cutis, while his 15 year old daughter presented only freckling and pigmentation scattered over the body.

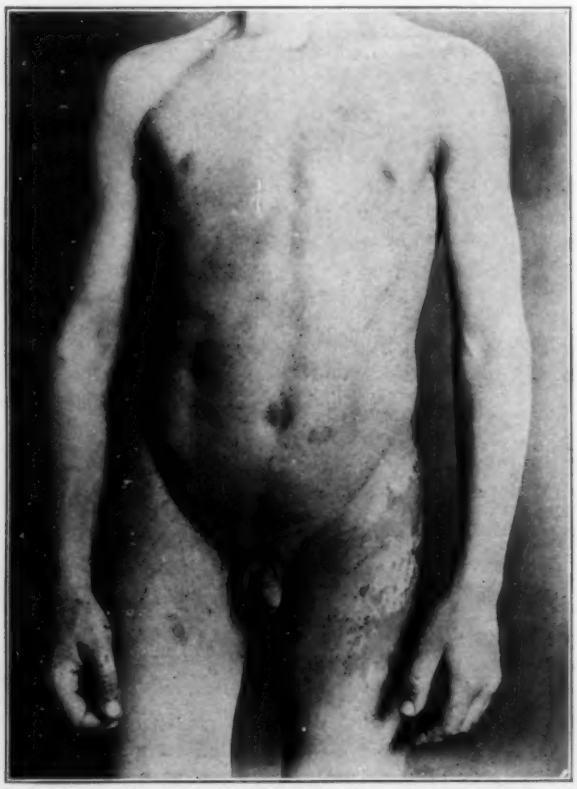

Fig. 3 (Case 2).—Single tumor on left scapula.

In Langer and Gumpert's second patient, a man, aged 23, a further stage of development was manifested by the presence of the characteristic "blue spots," together with barely palpable papular lesions of bluish tint. Three months after the patient came under observation, two additional papular lesions made their appearance, accompanied by intense pain. In their third patient, a woman, aged 19, there were countless small papular lesions, wartlike prominences and different varieties of pigmented nevi, together with many café-au-lait spots and depigmented areas, scattered over the trunk and extremities. In the fourth patient, a man, aged 47, the lesions were those of a typical, well developed and generalized neurofibromatosis cutis, as originally described by Recklinghausen. This patient also presented an unusual complication in that he had a nodular lesion of the urethra, causing retention of urine.

According to Adrian,[8] two symptom complexes characterize Recklinghausen's disease; the first comprises the cases with multiple cutaneous fibromas and neurofibromas, with pigmentations; the second, cases presenting hematolymphangiomas, lipomas, neurolipomas, tufts of hair growing on isolated tumors, atrophies, cutis laxa, etc., but especially the so-called "blue spots." These are level or barely elevated, lentil-sized, bluish pigmentations, beneath some of which may at times be felt little miliary tumors; the color of these spots fades under pressure. Adrian is inclined to regard these blue spots as forerunners of cutaneous fibromas.

In view of the many recorded examples of Recklinghausen's disease occurring without tumor formations, characterized chiefly by the appearance of pigmentations having a peculiar distribution and color, usually of hereditary and familial type, it would seem appropriate to regard this as a clinical variety of the affection, and to recognize it as an abortive or incomplete form of the disease.

REPORT OF CASES

Through the courtesy of Dr. J. G. Hopkins of Columbia University College of Physicians and Surgeons, we are enabled to present three cases of Recklinghausen's disease, occurring in a father and two sons. There were no other children. The father exhibited a well developed eruption of tumors, nevus-like formations and almost generalized freckling of the skin; the older son showed scattered café-au-lait pigmentations, with only a single small tumor on the trunk; while the younger son was an example of the abortive or incomplete variety of the affection, in that his skin presented no lesions other than pigment spots.

CASE 1.—C. I., a man, aged 50, married, a candy maker, father of two boys, presented an eruption consisting of a variety of lesions. The most prominent of these were numerous tumors, varying in size from one-fourth inch (6 mm.) to 1 inch (25 mm.) in diameter, distributed irregularly over the trunk and extremities. Their consistency ranged from quite soft lesions to tumors presenting considerable resistance to the palpating finger. The characteristic button-hole sensation was elicited on pressing some of these soft tumors. Nearly the entire cutaneous surface was covered by innumerable pigmented macules. These for the most part appeared to be ordinary freckle-like macules, very profusely distributed,

Fig. 4 (Case 2).—Single tumor on left shoulder.

more especially on the trunk and thighs. They were chiefly dark brown, with here and there larger macules of café-au-lait color. There were no "blue spots." The eruption first appeared at about the age of 5. Subjective symptoms were absent and the personal history was negative. There was no history of Reckinghausen's disease in any of the patient's

ancestors. The genital organs and the endocrine gland functions were apparently normal. There was no defective mentality.

CASE 2.—L. I., a boy, aged 11, elder son of Patient 1, had many scattered light brown freckles on the neck, trunk and extremities, together with a number of large café-au-lait

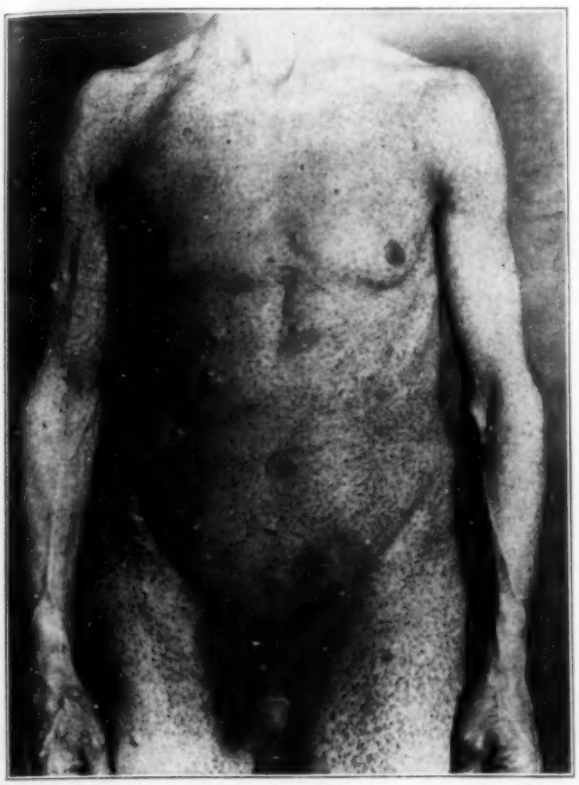

Fig. 5 (Case 1).—Front view of patient.

spots. On the left buttock and thigh he presented a dark brown, well defined pigmented nevus, about 10 inches in diameter. The surface was smooth, and the patch was not elevated. These pigmentations had been present since birth. There were no "blue spots." On the outer aspect of the left scapula there was a soft, elevated tumor about 1 inch in diameter, which appeared at the age of 8. On pressing down on this lesion, one could elicit the peculiar hernia-like sensation characteristic of this type of tumor. There were no other tumors on the skin. The patient was in good health and the mentality was quite normal; in fact, the boy was unusually bright. The melanotic lesions on the skin first appeared at about the age of 3. The boy had suffered since infancy from lateral curvature of the spine, which was corrected by operative measures at the age of 8. The testes were undescended.

CASE 3.—C. I., Jr., a boy, aged 9, younger brother of Patient 2, presented lesions that consisted only of freckles. There were many small pigmented lesions on the neck, trunk and extremities, of light brown, together with a few larger café-au-lait macules of irregular shape and different sizes on the neck, trunk and thighs. Subjective symptoms were absent. The general health was good and the patient was quite normal mentally. The pigmentations appeared in early infancy. The testes were undescended.

CONCLUSIONS

1. The cutanous manifestations of Recklinghausen's disease consist, in a certain group of cases here described, of nothing more than widely scattered pigment spots irregularly distributed on the trunk, buttocks and thighs. They vary from a light yellow to a deep brown, and from pinhead sized freckles to extensive areas, large enough to cover a buttock or a thigh, or a large area of the trunk.

2. This tumorless variety of the affection is usually encountered in one or more children of a family in which either parent has a typical neurofibromatosis cutis, as originally described by Recklinghausen. However, a pigmentary eruption without tumors may also occur in adults.

3. To this variety of Recklinghausen's disease the terms "incomplete" and "abortive" have been applied, suggesting the assumption that as the disease progresses, tumors eventually will make their appearance.

4. The terms neurofibromatosis cutis or fibroma molloscum multiplex are applicable only to those cases in which tumors form a part of the clinical picture.

24 West Fifty-Ninth Street.

ABSTRACT OF DISCUSSION

DR. JOHN H. STOKES, Philadelphia: I have always been distressed by our habit of calling the Recklinghausen syndrome a disease, and equally so by the confusion in that term of "fibromatosis" and "neurofibromatosis." As regards the pigmentary manifestations, one is inclined to wonder whether the neurogenous factor is not bound up with the abdominal sympathetic mechanism and the pigment metabolism of the body. The mental disturbances and peculiarities in conduct and make-up of these patients suggest a nerve factor. The showers of small, pigmented, nevoid papules which one sometimes sees in association with pigment-producing systemic disorders without actual metastatic malignancy are of interest, though not necessarily in point.

Fig. 6 (Case 1).—Rear view of patient.

DR. L. K. MCCAFFERTY, New York: Many authors in the foreign literature have been inclined to disregard the hereditary tendency, but this tendency is quite evident in the cases of Drs. Wise and Eller. A scoliosis is present in many of

these cases. Most persons present some slight functional scoliosis. Occasionally, instead of a scoliosis, these patients will present a kyphosis. Recently, an orthopedist informed me that many of these cases of Recklinghausen's disease presented themselves in an orthopedic clinic with a kyphosis, and on examination the cutaneous manifestations of Recklinghausen's disease were seen. Levin some time ago brought up the analogy between disturbance of the endocrine glands and Recklinghausen's disease. In two of the patients presented by the authors there were undescended testes. It might be advisable to have these cases examined carefully from an endocrinologic point of view if this has not already been done. Improvement has been reported in a few cases by proper endocrine therapy.

DR. CHARLES M. WILLIAMS, New York: The thing that struck me most in both boys was the peculiar fold of skin over the root of the penis, and the undescended testis, both of which are signs of pituitary insufficiency. The children are suffering from a congenital abnormality, but these defects do not necessarily assume the same form in all members of the family. One of the children has a tumor which permits a diagnosis of Recklinghausen's disease, but I do not see why the other case should be so classified until typical symptoms have developed.

DR. HERMAN GOODMAN, New York: Recklinghausen, in his original article, described neurofibromas associated with skin fibromas. The term Recklinghausen's disease is very loosely used by surgeons, neurologists and dermatologists. The same may be said for the term "neurofibromas." Rarely has a skin fibroma been found with any evidence of a nerve being enclosed within the tumor. Neither a healthy nor a diseased nerve has been demonstrated. We have been going much further than Recklinghausen. I do not remember anything in the original monograph, or in the pictures which accompanied it, which could fit the types of pigmentation described by the authors. We should, perhaps, be more purists in the use of terms. There certainly is a condition that fits the name "neurofibromatosis." It is not the condition that we know as fibromatosis of the skin. Recklinghausen's contribution to this subject is properly shown by the title he gave to his monograph. We have been using the three terms as if they were interchangeable. In addition, we have added the term "fruste."

DR. FRED WISE, New York: The point of view that Dr. Williams takes is one for which he has logical reasons, but with which we do not agree. The name Recklinghausen's disease has been given to several different entities, but if we do not designate these cases we have just described as Recklinghausen's disease, I do not know what we would term them. We cannot term them neurofibromatosis unless the eruption is associated with tumors. We do not say that they are Recklinghausen's disease in the same sense as Recklinghausen originally described it, but we assume that they are of the type Recklinghausen had in mind. One feature Dr. Eller did not have time to touch on is that of treatment. The question arises whether the administration of thyroid in the case of the younger boy would prevent tumor formation. This has always interested us in connection with these cases. We have experimented with two patients in whom feeding of thyroid had no effect, and it is doubtful whether any glandular product would have curative results in these abortive types of Recklinghausen's disease.

DR. J. J. ELLER, New York: So many cases of pigmentation similar to the ones shown today have been described in the literature, which later were followed by small tumors identical with those in Recklinghausen's disease, that we were led to believe that a diagnosis could occasionally be made before the tumors appeared on the skin. Most of the other cases described in the journals were cases in which the father or the mother had typical neurofibromatosis as described by Recklinghausen, and the children had pigmentary disorders which later developed into tumors. We believe this younger boy will later develop tumors, and that the older boy, who now has one tumor and who three years ago had only pigmentation, will later develop more tumors and present a typical case of Recklinghausen's disease.

EPIDEMIC BULBAR POLIOMYELITIS

REPORT OF SIX CASES WITH ONE NECROPSY *

JOHN McEACHERN, M.B. (TOR.)
WINNIPEG, MANIT.

During the latter half of August, 1924, a small outbreak of acute anterior poliomyelitis occurred in Winnipeg. The most interesting feature of this outbreak was the constant occurrence of acute bulbar paralysis with complete absence of limb involvement.

The occurrence of transient bulbar paralysis and its association with spinal symptoms and paralysis have frequently been noted. A constant localization of the virus in the medulla and pons with no clinical signs elsewhere is unusual and merits notice.

Medin,[1] in 1890, drew attention to the rarity of cranial nerve involvement without signs of limb paralysis. Peabody,[2] in 1911, described only four examples of true bulbar paralysis in a series of 183 carefully studied cases. In a series of 868 cases seen by Wickman [3] in 1905, only thirty-four showed cranial nerve involvement alone, and in these the facial nerve was most commonly affected. The ninth, tenth or eleventh nerves were involved in only four cases of this series.

In the epidemic reported in this paper, on the other hand, it was this very region, to judge from the clinical symptoms, that was attacked by the disease. At the same time, it must be admitted that when the matter was put to the searching test of postmortem examination, the distribution of the lesions was not that which a clinical study of the case would have given one reason to expect. This discrepancy is a well recognized fact which has been particularly emphasized by Peabody in his study of the New York epidemic of 1907.

CASE 1.—D. N., a girl, aged 6 years, was perfectly well, August 17, but on the following day she had a slight headache. On the 19th, she became acutely ill with severe headache, vomiting, and a temperature of 103 F. There was some stiffness of the neck, but the most marked symptoms were inability to swallow and regurgitation of fluids through the nose. The voice was normal. In ten days, the child was entirely well with no residual paralysis.

CASE 2.—H. M., a girl, aged 10 years, suddenly fell ill, August 2, with headache, vomiting and pain in the neck. The temperature ranged from 103 to 104 F. From the first day, the voice had a peculiar nasal quality. When seen on the third day, the little patient was unable to swallow. For ten days she was fed by gavage, during which time she remained in a semicomatose condition but was very irritable and hyperesthetic. The deep reflexes were very active. After the tenth day, improvement was rapid, although one month after the onset she was still unable to swallow solid food of a tenacious kind, such as mashed potatoes. She has now recovered (March, 1925), and there is no residual paralysis.

CASE 3.—V. G., a girl, aged 3 years, was seen August 9, twenty-four hours after the first sign of illness. At that time, the child was gasping and choking for breath. The mouth and pharynx were completely filled with a frothy, white, mucous fluid. The posterior nares and nose were filled with the same material. The child was unable to swallow, and, although the throat and nose swabs were negative

* From the Departments of Pathology of the University of Manitoba, and the Winnipeg General Hospital.

1. Medin: Ueber eine Epidemie von spinaler Kinderlahmung, Verhandl. X. Internat. Med. Kongr., Berlin, 1890.

2. Peabody, Draper and Dochez: Acute Poliomyelitis, Monograph 11, Rockefeller Inst., 1911.

3. Wickman: Studien zur Poliomyelitis acuta, Arb. a. d. path. Inst. d. Universität. Helsingfors, 1905, p. 109. A complete bibliography will be found in Romer's Epidemic Infantile Paralysis, New York, William Wood & Co.

for Klebs-Löffler bacilli, 7,000 units of diphtheria antitoxin was administered, with no improvement. One week later, the child was markedly hyperesthetic and irritable. The long bones, especially the femur and tibia, were very tender. August 14, the child had a convulsion and the mother, thinking she was choking, picked her up. She died in the mother's arms.

This was a case of true bulbar paralysis with the peculiar occurrence (in common with several others in the series) of a white, frothy, mucous fluid in the upper respiratory tract.

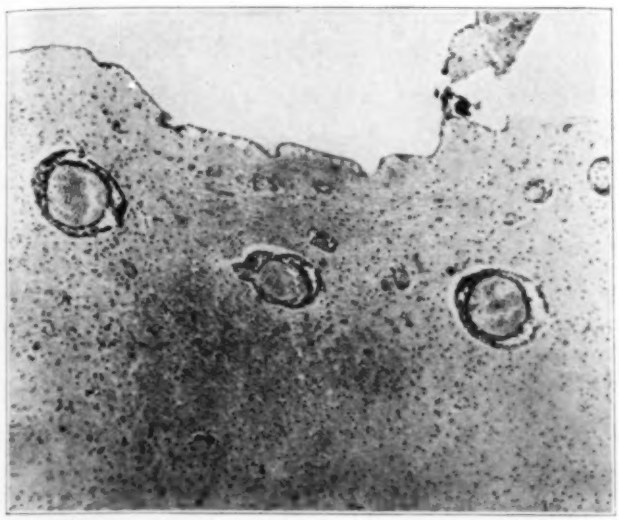

Fig. 1.—Floor of the fourth ventricle, showing perivascular collars of cells in Case 6.

CASE 4.—N. C., a girl, aged 6 years, suffered from headache and weakness for a few days. When seen, August 28, her chief symptom was an inability to void urine, associated with a high temperature and a rapid, thready pulse. The child's neck was slightly stiff and tender, but no other paralysis or abnormal sensation was found. There was a profuse watery nasal discharge which was bacteriologically negative. August 30, she became irrational, and a flaccid paralysis of the right leg and ptosis of the right eyelid were found. Complete paralysis of the vesical sphincter necessitating routine catheterization persisted for ten days, after which the condition gradually improved. The urine was normal. Six weeks later, the child still suffered from a selective paralysis of the muscles of the right leg.

This case exemplifies in a striking manner the wide distribution of the lesions in some cases of poliomyelitis. Commencing apparently in the lowest part of the cord and there causing sphincter paralysis, the disease extended up as far as the mesencephalon. Many cases of transient paralysis of the sphincters have been reported which have cleared up in one or two days. In this child it lasted for ten days, and such cases are rare indeed.

CASE 5.—D. B., a boy, aged 4 years, had been irritable and drowsy for one week. He awoke, August 8, with a rattle in his throat and was unable to swallow. Examination revealed a left-sided complete facial paralysis, a deviation of the tongue to the left when protruded, and a white, frothy mucus in the nose and throat. The child was unable to swallow. The left knee jerk was absent, but there was no evidence of limb paralysis. Lumbar puncture provided a clear fluid under slightly increased pressure and a marked increase in globulin due to the presence of polymorphonuclear and lymphoid cells (about 200). No organisms were found, and the sugar content was within normal limits. Although the child was fed by gavage for two weeks, vomiting through the nose persisted. He was discharged, September 6, with a slight residual paralysis of the soft palate and a marked facial paralysis.

CASE 6.—A. B., a girl, aged 6 years, was admitted to hospital, August 27, and died eight hours later. Three days prior to admission, the child was perfectly well. The onset was characterized by coryza and a feeling of nausea, followed in a few hours by vomiting. The child was feverish and, the day prior to admission, regurgitation of fluids through the nose took place. Associated with this was a complete inability to swallow and a disturbance of speech. When first seen, the child was very ill indeed, and suffered from severe headache and pain at the nape of the neck. The mouth was filled with white foam. There was complete aphonia and absence of the cough reflex. She was admitted in a comatose state, and owing to her collapsed condition it was not possible to make a complete examination. There was, however, marked retraction of the head, a bilateral internal strabismus, and a paralysis of the soft palate. The arms and legs were moved freely on irritation. Laboratory tests revealed a negative throat swab, a leukocytosis of 15,000, and a differential white blood count of 67 polymorphonuclear cells and 30 small lymphocytes.

Postmortem examination showed that the child was well nourished, with apparently normal heart and lungs; there was nothing of any gross or microscopic interest in the abdomen except a universal enlargement of the mesenteric lymph glands, which were red and soft. The dura mater was firmly adherent to the skull cap. Puncture of the cisterna magna just after death provided some cloudy spinal fluid with a lymphocytic count of 375 cells per cubic millimeter. No organisms were found in this fluid.

Microscopic examination revealed the fact that, while lesions were to be found scattered throughout the greater part of the central nervous system, from the basal ganglions above to the lumbar region of the cord below, it was in the pons, the medulla and the upper part of the cord that the full force of the virus had been felt.

The cerebral and cerebellar cortex showed no lesions, and the same was true of the thalamus, the caudate nucleus, and the putamen of the lenticular nucleus. In the globus pallidus, however, a few of the telltale perivascular collections of lymphocytes and plasma cells could be detected, and many of the vessels were thrombosed. The lesions became more abundant and more marked in the midbrain, but they still remained perivascular in distribution. When the pons was

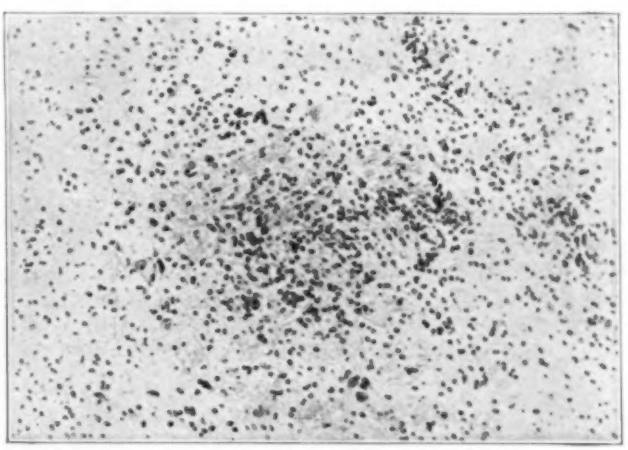

Fig. 2.—Area showing diffuse infiltration in pons in Case 6.

reached, however, the entire picture changed. True, the familiar perivascular collars were still much in evidence (Fig. 1), but what now dominated the picture was a veritable flooding of the tissues with inflammatory cells, a diffuse infiltration of an intensity rarely seen in epidemic encephalitis (Fig. 2). The cells of which this infiltration was composed were lymphocytes and plasma cells. The inflammatory reaction reached its height in the medulla and in the upper part of the cord. In the medulla, the diffuse infiltration was even more extensive than in the pons, and among the inflammatory cells a number of polymorphonuclear leukocytes could be seen, a sufficient indication of the intensity of the infection. Many of the nerve cells were profoundly degenerated, and some

of these were surrounded by phagocytic cells which were hastening their destruction, a process of neuronophagia.

The intensity and arrangement of the lesions in the cord were identical with those in the brain except that the lesions diminished instead of increasing as we passed from above downward. In the cervical cord, the gray matter of the lateral and posterior horns was the site of an intense diffuse inflammatory infiltration, while the anterior horn showed little or no change. Nerve cell degeneration and neuronophagia were very marked features (Fig. 3). The lesions were more

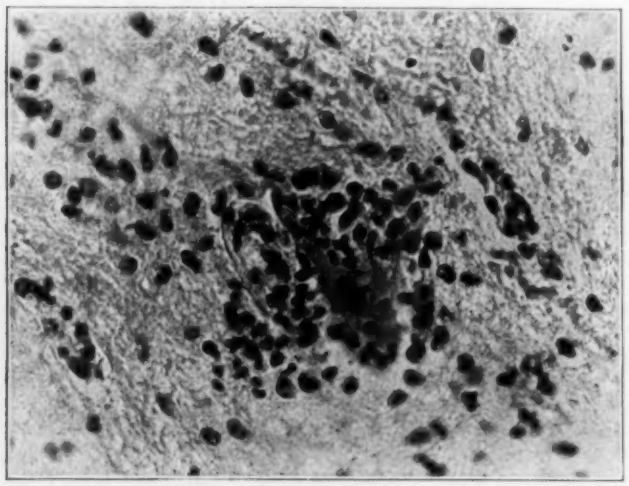

Fig. 3.—Nerve cell in the cervical region of the cord showing neuronophagia in Case 6.

marked on the left side. Many small hemorrhages and perivascular collars of inflammatory cells were scattered throughout the gray matter and to a lesser extent in the white matter. The meninges showed no inflammatory lesions except deep down in the anterior fissure. In both the dorsal and the lumbar regions, numerous lesions could be seen, but they were nothing in severity to those just described in the cervical cord. The vessels were congested, and there were small perivascular collars, but no hemorrhages, no diffuse infiltration, and no neuronophagia.

Although the matter is still *sub judice*, we may for the present assert that the voluntary muscles of the pharynx, larynx, upper esophagus, vocal cords and soft palate are supplied by the eleventh cranial nerve. As these are the very muscles that were involved in the foregoing patient, we would expect the most marked lesions about the eleventh nucleus. The difficulty of correlating the pathologic and clinical findings in bulbar poliomyelitis, which has already been referred to, is well exemplified in the present case, in which the lesions were more pronounced in the cervical region of the cord than in the vicinity of the eleventh nucleus.[4]

SUMMARY

1. In a peculiar epidemic of poliomyelitis of the bulbar type, the cases all presented the common clinical symptom of paralysis of the muscles of the upper respiratory tract. There was no coincident paralysis elsewhere.

2. A striking feature of several cases was the presence of a white, frothy mucus in the nose and throat.

3. In agreement with the generally recognized severity of bulbar poliomyelitis, two of our patients died, and in the others the clinical picture was for a time very grave.

4. The constant involvement of the muscles supplied by the eleventh nerve is most unusual.

5. The dissociation between clinical and pathologic findings is well exemplified in the case studied at necropsy, the most intense reaction occurring in the cervical cord rather than in the medulla.

6. Paralysis of the sphincter vesicae, of ten days' duration, occurred in one of the cases described, which also well illustrates the widespread distribution of the lesions.

7 Roslyn Road.

4. Since the preparation of this paper, F. B. Walsh has reported in the Canadian Medical Association Journal (**15**: 482 [May] 1925) a most interesting clinical review of an outbreak of poliomyelitis in Saskatchewan. The remarkable similarity of many of his cases to those described above will be noted.

PARAFFINOMA

DOUGLASS W. MONTGOMERY, M.D.
AND
GEORGE D. CULVER, M.D.
SAN FRANCISCO

We have seven histories of paraffinomas, of which two are of more than ordinary interest. All the victims were women. The ages of six of them were, respectively, 43, 38, 44, 71, 41, and, finally, as a surprise, 20 years.

One of the especially interesting cases was that of a woman, aged 43, who consulted us, Sept. 17, 1912, and who began to get paraffin injections into the face the preceding May. The last was given, June 10.

Fig. 1.—Small pea-sized pseudoxanthomas scattered along furrows, produced by retraction of the tissues.

Therefore, she consulted us three months after the last injection. Two days after this last injection, she caught "cold" in the face in going to the beach, and the site of the injections became swollen, red and inflamed; ever since, this irritation had recurred about every ten days. When the patient consulted us there was a dark red, irregular shaped induration of the left cheek, with much edema of the left lower lid. The patient had several infected teeth that may have had

some influence in what we considered to be a recurrent relighting of a chronic streptococcic infection. She also had a gastro-enteritis, which also may have contributed to her attacks. Antistreptococcic serum was employed in vain; the attacks persisted, sometimes as nodules, sometimes as more widely spread indurations. After seven months of treatment, during which many remedies were tried, the patient vanished from our sight, with no improvement noted.

The other interesting case referred to was one in which the scars resulting from the paraffin injections underwent a curious fatty degeneration, giving a picture resembling pseudoxanthoma elasticum.

Fig. 2.—Severe retraction of the tissues has pulled back the corners of the mouth, pouted the lips and puffed out the cheeks above and the neck below the severely affected areas. The skin of the neck is thrown into snakelike folds.

Pseudoxanthoma and elastorrhexis are terms applied to yellow, smooth, soft tumors exactly resembling in their appearance xanthoma, but due not to a deposit of cholesterin as xanthomas are, but to a colloid degeneration of the elastic tissues of the affected part.

The woman, aged 44, was referred to us, Jan. 29, 1917. She had had paraffin infiltrated into the cheeks five years previously, and they had recently become inflamed. This inflammation subsided under appropriate treatment, but the deformity proceeded in the usual way, and among other things interfered with the opening of the mouth.

In April, 1922, the patient called, saying that ten days previously an inflammation had begun on the left cheek, which resulted in a depressed dry ulcer, situated in an indurated furrow. She feared cancer, and in fact the posterior edge of the ulcer at the tragus was waxy and resembled epitheliomatous infiltration. We had occasion to be alarmed, as B. F. Davis and Fred Wise had both reported malignant changes occurring in paraffinomas. There was a slanting series of scars running downward and forward from the ear along the cheek toward the corner of the mouth. The cheek both above and below this row of scars was indurated and puffed out by paraffinomas, some of which below the jaw were movable nodules. The same condition was present on the left cheek, but less marked. Both corners of the mouth were retracted. All the foregoing symptoms were those ordinarily seen in paraffinoma. On more narrowly observing the patient on account of the smooth yellow epithelioma-like character of the tragus of the right ear, it was noticed that scattered along the scar down the cheek there were soft yellow tumors exactly resembling xanthomas; then it became clear that the condition of the tragus was of the same nature. There were also some of these little tumors on the left cheek. That they were not xanthomas was clear from their restriction to the scarred areas and their absence from the eyelids. The disturbance of the circulation had given rise to the degeneration of the elastic tissue of the skin, and in the tragus had affected also the elastic cartilage of the earshell.

The question of punishing persons who cause such suffering is a grave one. The legal phrase caveat emptor, let the buyer beware, is an old one in Anglo-Saxon law and is justly respected, but the conditions in modern life have changed. A few years ago no one suspected the psychic effect of advertising. We now know that the most vicious and destructive agents or measures may flourish under its influence, and that a given amount of advertising will secure a given amount of trade, irrespective of the worth of the article advertised. The people who do this advertising of an injurious method or substance are as deliberately vicious as those who accomplish the act, and both should receive a punishment adequate to the harm they do.

323 Geary Street.

SOME CAUSES OF POOR FUNCTIONAL RESULTS FOLLOWING PROSTATECTOMY *

ROBERT H. HERBST, M.D.
CHICAGO

The paramount issue in the problem of benign prostatic obstruction is not simply the removal of the enlarged gland, but the correction of urinary function to as near the point of perfection as possible. In order to obtain this result, it is frequently necessary to do more than the enucleation of the adenoma. There are a number of factors that play a part in poor function following prostatectomy, the correction of which, before or at the time of the removal of the gland, would help to minimize these not uncommon results. Some of these conditions are due to omissions in the preoperative study, while others may be avoided by careful attention to detail during removal of the gland.

DIVERTICULA OF THE BLADDER

Diverticula of the bladder are not uncommonly associated with prostatic obstruction and play an important rôle in its symptomatology. In fact, they may have more to do with the impaired function than the obstruction at the neck of the bladder. Therefore, their recognition and removal are essential.

* Read before the Section on Urology at the Seventy-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., May, 1925.

The etiology of diverticula is still an unsettled question, and much of the literature up to the beginning of this century was devoted to the discussion of origin of these sacs whether congenital or acquired. The numerous reports of diverticula found in children, in females, and even in males, in whom careful search

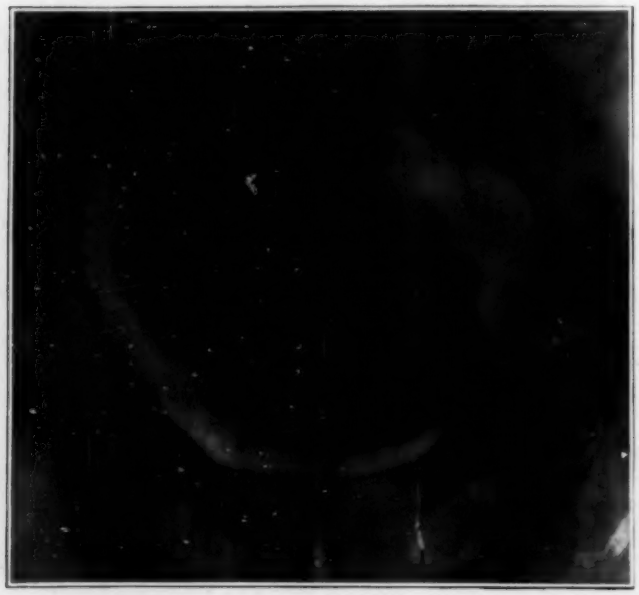

Fig. 1.—Retention diverticulum: The bladder and diverticulum are filled with contrast fluid.

failed to reveal any signs of obstruction, are sufficient evidence in favor of the congenital origin of some of them. On the other hand, the frequency with which this condition is associated with the various forms of lower urinary tract obstruction would lead one to believe

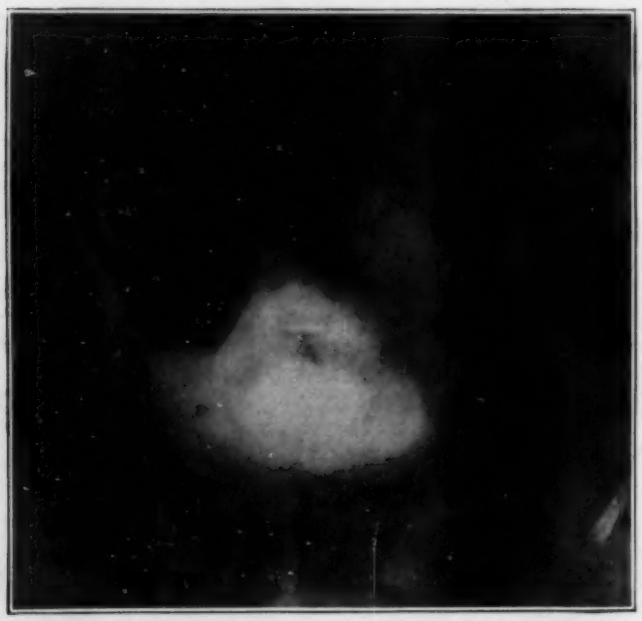

Fig. 2.—Retention diverticulum: The bladder has been drained by the catheter and air has been injected, but the contrast fluid is retained in the diverticulum.

that they are acquired in many cases, especially in those in which there has been a total absence of symptoms until obstruction occurred. Few will question the possibility of congenital areas of weakness in the bladder wall, or a predisposition to herniation, which, when aggravated by urinary obstruction, is followed by the development of diverticula. The symptoms of diverticula are practically those found in the average case of prostatic obstruction; for this reason they may be overlooked unless a careful investigation is carried out before removal of the enlarged gland. In addition to the symptoms of bladder infection, diverticula, like the enlarged prostate, may produce upper urinary tract obstruction. They are frequently located in the region of the ureters and, when distended, may obstruct the flow of urine from the kidney, by pressure. Under these circumstances, we may see the complete picture of prostatic obstruction produced by diverticula and, if overlooked at the time of removal of the prostate, there will be little change in the symptomatology.

A clinical diagnosis of diverticula of the bladder was rarely made before cystoscopy and radiography were added to our diagnostic equipment. Most diverticula can be found with a cystoscope; but the information obtained is of limited value, because, although it gives accurate information as to the number of pouches and

Fig. 3.—Nonretention diverticulum: The bladder and diverticulum are filled with contrast fluid.

the location, size and shape of the orifices, it does not aid us in differentiating between the diverticulum that empties coincidentally with urination and the one that does not. The former, which may be designated as nonretention diverticula, rarely produce symptoms, while the latter practically always produce symptoms, and may be called retention diverticula. The differentiation between these two types cannot be determined with a cystoscope, but can be accurately made by a cystogram.

This information is of the utmost importance, and the question of surgical indication hinges on this point. In some cases of prostatic obstruction, when the contour of the neck of the bladder is changed so that it will not admit the passage of the cystoscope, cystography is the only means of locating diverticula. Again, by this method, we may obtain information as to the exact shape, direction of the diverticulum, its relation to other organs, and the presence of foreign bodies, such as stones and tumors.

The presence of retention diverticula, associated with the hypertrophic prostate, should be determined before the bladder is opened. Unless this is carried out in the preoperative study, many of these diverticula are liable

to be missed, because the orifices often close as the bladder collapses.

If such diverticula are overlooked, we find the patient usually passes through a slow convalescence, and is not relieved of his urinary symptoms, even though the obstruction has been completely removed. This is explained by the fact that the urine retained in the diverticulum is constantly poured into the bladder, keeping up a cystitis, with frequent imperative, painful urination, symptoms commonly associated with prostatic obstruction.

Knowing how frequently diverticula are associated with prostatic obstruction, and the importance of the knowledge of their existence, I cannot urge too strongly the utilization of cystography in the preoperative study of lower urinary tract obstruction. This should be carried out in the following manner: After it has been emptied, the bladder should be distended with a contrast fluid (I use 15 per cent. solution of sodium iodid) and a film taken. This gives an excellent picture of the bladder and its filled diverticulum. The bladder is then

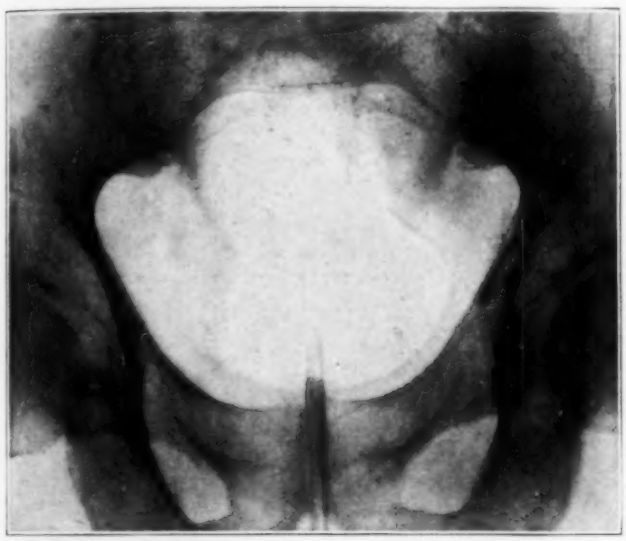

Fig. 4.—Nonretention diverticulum: The bladder has been drained by the catheter and air has been injected. The diverticulum empties with the bladder.

emptied of its contrast medium, air is injected, and a second film is made. If retention diverticula are present, they are seen clearly outlined by the retained contrast fluid, while the bladder area is dark, owing to the presence of the injected air. This method is not original with me—Hinman used a similar method in 1919—but knowing the value of the information obtained through its use, I stress it, with the hope that others will include it as a routine preoperative study in the prostatic patient.

A cystographic study furnishes information helpful in planning the operation best suited to a given case. Nonretention diverticula rarely require removal, while those that retain urine cannot be benefited by anything short of excision. Whether or not these sacks should be removed before, at the time, or after the removal of the prostate, depends on the condition of the patient. Probably the same rules may be applied to these cases as are used in cases in which obstruction is not complicated by the presence of retention diverticula.

When serious changes in the upper urinary tract require preliminary drainage, it should be carried out with a catheter, if possible, rather than by cystostomy, because the latter may increase the technical difficulty encountered in excising the diverticulum. When retention diverticula are found associated with hypertrophy of the prostate, they should be removed before, at the time, or soon after the removal of the gland. Failure to carry this out is frequently the cause of poor functional results.

Fig. 5.—Cord bladder: The bladder and diverticulum are filled with contrast fluid.

NERVE BLADDER

The so-called cord bladder, when associated with enlargement of the prostate, may be the cause of poor functional results. It is particularly difficult in dealing with this combination to determine preoperatively the part played by each in the production of symptoms. There are two types of nerve bladders: those in which a lesion in the central nervous system can be demonstrated by a neurologic study, and those in which there is no evidence of any changes in the cord, the latter probably caused by sensory disturbance. T. D. Moore states that 23 per cent. of the cord bladders seen in the Mayo Clinic in 1921 and 1922 were of the latter type. It is quite important to carry out a preoperative neurologic study in the prostatic, and this should include an

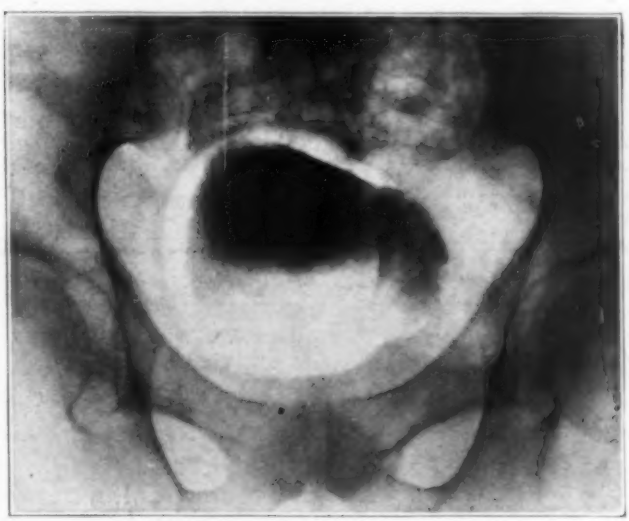

Fig. 6.—Cord bladder: The bladder empties incompletely, even when drained by the catheter.

investigation of the sensory changes, as pointed out by Moore, as well as a search for lesions of the cord.

The relaxation of the internal sphincter, so valuable in making a diagnosis of cord bladder, cannot be demonstrated, owing to the presence of the enlarged prostate. Trabeculation of the bladder is present in both

Fig. 7.—The prostate has been removed, but retention is still present, owing to overlooked fibrosis of the bladder neck.

conditions; and although the trabeculation of mechanical obstruction is different from that of cord bladder, when the two conditions are associated, this sign is not very helpful.

The age of prostatism is the age of arteriosclerosis, and this condition of the cord must be thought of when prostatectomy fails to give good urinary function.

It is difficult in many of these cases of cord bladder to determine how much of the retention is due to the

Fig. 8.—A case of bilateral retention diverticula, in which the enlargement of the prostate was insignificant, and yet marked symptoms of prostatism were present. The bladder and diverticula are filled with contrast fluid.

enlargement of the prostate, especially if the gland is only moderately enlarged, and how much of it is due to faulty innervation. That some of these cases are not benefited by prostatectomy few will question, and the surgical indication is always a problem; nevertheless, the preoperative knowledge of the existence of a cord bladder is most valuable in giving a prognosis as to functional results.

Fibrosis of the internal sphincter may interfere with urinary function after removal of the gland. This may assume two forms: the condition called by the older writers contracture of the neck of the bladder, which includes the small hard prostate and fibrosis of the internal sphincter; and the tight sclerotic internal urethral orifice, probably postinflammatory, associated with hypertrophy of the gland. Failure to recognize this condition of the orifice, before or during the removal of the prostate, may be the cause of a poor functional result. That the prostatic bed may harden and contract to the point of interfering with micturition is well known, but undoubtedly some of these fibroses are present before the gland is removed, and the condition should be corrected.

Prostatic tags left after prostatectomy and attached to the internal urethral orifice may be large enough practically to obstruct the outflow of urine and to inter-

Fig. 9.—A case of bilateral retention diverticula, in which the enlargement of the prostate was insignificant, and yet marked symptoms of prostatism were present. The bladder is drained, and the diverticula are still filled.

fere with urinary function. These tags may become necrotic, slough off, engage in the internal urethral orifice, and obstruct the urine; also they may act as nuclei for stone formation. There is little danger of overlooking these tags and removing them, especially by those who perform a visual prostatectomy. Failure to remove them may necessitate a second operation, such as diathermy, a punch operation or excision.

A bar produced by the trigon, crossing the internal urethral orifice at a high level, may be the cause of a poor functional result. This can be seen and felt after the enucleation of the prostate, and may be corrected by a V-shaped excision of the bladder wall at this point.

Urethral polyps, developing in the prostatic bed, may be the cause of impaired function. A careful inspection of the urethra should be made in patients who, months after prostatectomy, show evidence of obstruction to the outflow of urine. The origin of these polyps is not known, but it is evident that they develop more frequently in the prostatic bed than in the normal urethra. When found, they are easily removed by diathermy.

Careful bimanual palpation of the prostatic bed and trigon will prevent overlooking deep-seated subcervical glands, which, if not removed, may interfere with good urinary function following prostatectomy. These small globular masses are enlarged submucous glands of the trigon, termed, by some, aberrant prostatic glands or Albarran's glands.

Retention and infection of the upper urinary tract is the most important part of the problem of prostatic obstruction. This infection may persist, after the obstruction has been removed, pouring infected urine into the bladder and keeping up a severe cystitis. This is a rather common cause of poor function, following prostatectomy, and should be suspected when the urine continues to be purulent, even though the bladder empties completely. However, it is not uncommonly overlooked. Careful study of the upper urinary tract, with subsequent treatment, such as pelvic lavage and instillation of silver nitrate, will usually correct the function in these patients.

Infection of the seminal vesicles may be the cause of persistence of symptoms after prostatectomy. This condition is commonly associated with prostatic hypertrophy, as is evidenced by the frequency of epididymitis following operation. The infection of the vesicles may occur after enucleation of the gland by direct extension from the prostatic bed. Some of these infected vesicles may be found before operation, by careful rectal palpation. Indeed, they may be responsible for most, if not all, of the symptoms charged up to the enlarged prostate. When infection persists after operation, treatment must be directed to these organs. Routine massage may relieve the symptoms and improve the urinary function. If this fails, vasotomy or vesiculectomy may be necessary in order to obtain a good functional result.

The formation of stone in the bladder, in the prostatic cavity, or incrustration of the prostatic bed, may interfere with good urinary function. The presence of either of these conditions is easily determined by cystoscopy or roentgenography, and their removal is usually followed by prompt improvement.

Incomplete removal of prostatic adenoma may be followed by recurrence and a poor function result. This reformation is not commonly seen, and, when it occurs, is usually due to incomplete enucleation of the adenomatous tissue, or failure to remove enlarged submucous glands.

CARCINOMA AND BENIGN HYPERTROPHY

Failure to recognize an associated malignancy in the lower segment with benign hypertrophy in the upper segment may be the cause of persistence of symptoms after removal of the benign part. Adhesion of the posterior surface of the gland to the lower segment should make one suspicious of this condition, and a bimanual palpation of the prostatic bed, following enucleation, will usually reveal some hard nodules in the so-called surgical capsule of the gland.

Postoperative investigation of the prostatic serves to emphasize the value of a complete preoperative study. This should include a cystoscopic examination, whenever it can be carried out. There are definite contraindications to its use, and when they exist a cystogram will often give the desired information. A neurologic study, including a study of the motor and sensory tracts, will furnish valuable diagnostic and prognostic data. Again, careful inspection of both bladder and bladder neck, and visual prostatectomy, including bimanual palpation of the prostatic bed, will greatly reduce the number of poor functional results.

In this brief paper, I have not made an attempt to discuss all the conditions that may be the cause of poor functional results following prostatectomy, but have tried to emphasize those which are more commonly encountered in the postoperative study of the prostatic.

104 South Michigan Avenue.

ABSTRACT OF DISCUSSION

DR. A. L. CHUTE, Boston: Dr. Herbst has brought up many things that trouble us following prostatectomy. In the first prostatic case with a diverticulum of the bladder in which I operated, I followed the patient's wish and did the diverticulum first, as he wanted to go for a vacation and get into better condition to face what he considered the serious operation. When he came to having the prostatectomy done, the diverticulum had reformed. That was a great many years ago, and I do not do the operation that way now. It is very easy to leave enough tissue to cause obstruction, especially with the perineal operation. I know I have left a considerable amount of tissue on a few occasions, because I have had a chance to see it. One man bled during his convalescence from a perineal prostatectomy, and I went in from above and found a considerable mass of tissue that was evidently to one side and was overlooked. This raises the question as to whether there is ever a recurrence of an adenomatous growth following prostatectomy. In theory there is no reason why this should not happen, but I think it does not occur often. I was interested in the cystograms Dr. Herbst showed; they seem to give a graphic way of determining whether we shall be likely to have trouble following operation. I remember a patient I saw some years ago for whom a very good man in a neighboring city had done a prostatectomy: for a time following, operation symptoms were absent. Symptoms then recurred, and another man saw the patient and said that he doubted whether his prostate had ever been removed. Rectal examination showed a large mass that was a perfectly typical carcinoma. The original prostate had been carcinomatous and had recurred following its removal.

DR. HERMAN L. KRETSCHMER, Chicago: Dr. Herbst covered his subject very well, and there are just one or two points I wish to mention. We as urologists have no excuse for overlooking diverticula. As to whether there is retention or not, I think this does not make much difference. I think the indication is to remove such a diverticulum whenever found.

DR. ALEXANDER RANDALL, Philadelphia: I think it is delightful to look back over the history of prostatectomy. Taking as the first decade 1895-1905, one finds a period when prostatectomy existed as a surgical emergency. The mortality at that time was not and never will be computed. From 1905 to 1915, we see the development of the perineal and suprapubic operations and see prostatectomy put on a surgical basis. The mortality dropped from an astounding figure to one that was very creditable. The operation became a recognized surgical procedure. Nevertheless, at the end of that time, Whiteside was able to present us with figures showing that in the hands of those who were particularly interested the mortality was good, while in the hands of those doing general surgery the mortality was still to be omitted. During that time we were taught by Young the proper means to prepare a patient, valuable functional kidney tests were developed, and we began to recognize the necessity of postoperative care. In the third decade, now ending, from 1915 to 1925, we see the results of our work. We have seen the mortality fall further and further until, as we stand here today, I think we can feel justly proud of the results and realize that we have the situation well in hand. The papers today, and I think the trend of today show rather a satisfaction with that mortality, dealing as we are with such elderly patients, and I should like to see us enter this fourth decade bending our efforts toward what Dr. Herbst has pointed out—that we should strive to reduce the postoperative morbidity, which is still a very pertinent factor. We should get out of the rut of thinking that all we must do is save the man's life, and try to promise him a perfect postoperative

recovery. One thing further about Dr. Herbst's paper, as regards the postoperative morbidity: We all see the patients who have more or less persistent postoperative fistulas. They delay the patient's convalescence; they delay his going home, and he goes past the three week limit. We should stop to realize that while this man has been developing his condition of prostatism over many years, he has been straining to urinate, and he has fallen into habits that are bad. I have on many occasions sat down and explained to these men the normal inhibitory function in relaxing their sphincters, and in this way have taught them to stop the pernicious straining that I have so often found to be the cause of the persistent fistula.

DR. CLARENCE R. O'CROWLEY, Newark, N. J.: I believe that hemorrhage can be controlled much more easily in the suprapubic route. As Dr. Herbst shows, it is easy to cut down on diverticula of the bladder and find them different from the cystogram. I have been in the habit before operation of gathering a little further information by having a lateral cystogram taken.

DR. LEON HERMAN, Philadelphia: I am convinced that both the suprapubic and the perineal operations are attended by considerable postoperative morbidity, more in fact than we are sometimes willing to admit. This, by the very nature of the mechanical problems involved, is inevitable. Those surgeons who practice the suprapubic operation almost exclusively will have, in all probability, considerable postoperative morbidity with their perineal operations. The advocates of the perineal operation are likely to have poorer results with the suprapubic operation. I have had bad results in some cases with each operation, and judging from the condition of some patients I have seen who have been operated on elsewhere, I am not alone in my difficulties. Considerable morbidity after the suprapubic operation is due to packing and other mechanical means used to prevent hemorrhage. I say prevent, and not control, for in the vast majority of cases after suprapubic prostatectomy, there is no bleeding that necessitates efforts to control it. Some time ago I prepared a paper in which it was stated that we had not used any hemostatic measures for a period of two years. On the morning of the day when this paper was to be presented, I encountered a hemorrhage after prostatectomy so severe that it was necessary to use five gauze packs pulled down into the prostatic bed by means of a Hagner bag to control the bleeding. Regardless of the technic employed, one will encounter the various postoperative complications sooner or later. Serious intravesical hemorrhage may occur from the most unexpected lesions; in one instance I found it necessary to pack the prostatic urethra from above to control an alarming hemorrhage that occurred after perineal prostatectomy for abscess; there was no bleeding from the perineal incision. I have seen almost fatal bleeding from a small vessel in the scar of the bladder wall consequent on operation for carcinoma in the absence of recurrence of malignancy. Profuse bleeding after prostatectomy usually occurs in cases in which it has been necessary to tear through the mucosa of the trigonal apex in order to free the gland; if the removal can be effected by peeling the gland from the vesical mucosa from in front backward, the hemorrhage will be slight for the reason that the large vessels of the mucous membrane are not torn across.

Persistent fistulas are seen after suprapubic prostatectomy and are usually, but not always, due to persistent obstruction at the outlet of the bladder. The latter may be overcome in some instances by intra-urethral measures, but reoperation is often necessary. In the absence of persistent obstruction, the failure of the wound to close is dependent on one of four factors: (1) epithelization of the fistulous tract caused by sewing the bladder to the rectus sheath in patients with very thin abdominal walls; (2) prolonged drainage of the space of Retzius with incomplete closure of the lower angle of the bladder wound in one stage operations; (3) placing the drainage tube in the lower instead of in the upper angle of the wound after the second stage of a two stage operation, and (4) systemic diseases such as diabetes and advanced arteriosclerosis. Reoperation is necessary in the first three groups; in the latter group, fulguration of the wound, multiple small incisions, the application of heat and light, and catheter drainage will usually result in cure of the fistula.

DR. IRVING SIMONS, Nashville, Tenn.: In regard to postoperative results following prostatectomy, I am glad some one else has difficulty in deciding just how much of the prostatic adenoma to take out. I think the most difficult thing to learn is the decision whether or not to leave certain small areas of induration that exist in the body of the capsule in the cavities left after the main lobes have been enucleated. I do not think that there is any way to learn this except that each person has to learn it for himself. At times these things, when enucleated with the finger, give considerable trouble both in their enucleation and on account of the hemorrhage that follows. I think small portions may be left in, provided they do not protrude too far and cause obstruction. I occasionally see a case in which operation has been done by a colleague, in which there is obstruction afterward that prevents the suprapubic fistula from healing. On one occasion I saw one in which there was complete closure of the bottom of the bladder. The internal urethral orifice was entirely closed over. One of the reasons for such a result is that many operators still believe it is wise to take out the entire prostatic adenoma in one piece. It does look better to the bystander to remove a lump the size of a hen's egg, and while we usually tell them that the removal of a block of urethra an inch and a half long does no harm, I prefer to make several small nicks in the masses in the bladder and take the prostatic adenoma out in small pieces. I think there will be less scarring if this is done. I have never had such a thing as closure at the vesical neck, and I have no trouble with patients reporting that they cannot empty their bladder well.

DR. CLYDE W. COLLINGS, New York: We have used caudal anesthesia for some time in Bellevue Hospital and find it very satisfactory. We have had no toxic effects. In about 10 per cent. of the cases, the anesthesia fails; we think this is on account of the technic. A good many men are doing it, and their methods vary somewhat. Regarding scar tissue contracture after prostatectomy, we have been using the radiotherm high frequency for the past two years, burning through the scar tissue with a specially devised electrode. This has proved very successful.

Referring to Dr. Herbst's paper, during the last few years we have taken out only one prostate for tabes dorsalis. This case is held up as a horrible example to every one. If there is any change whatever in the reflexes, the spinal fluid is examined as a routine procedure.

DR. B. A. THOMAS, Philadelphia: There are two main factors to be considered in the problem of prostatectomy: first, mortality, and second, morbidity. I believe the mortality rate is down nearly to rock bottom, as the result of careful preoperative study of the cardiovascular and urinary systems, the proper choice of an anesthetic, discrimination as to the selection of the suprapubic or perineal route, and refinement of technic. However, I should like to say that I am in favor of neither the spinal nor the caudal route as the method of anesthetic of choice. I think that if patients are properly prepared and qualified for operation, the vast majority of them can be operated on safely under nitrous oxid or even ether or ethylene gas. I do occasionally resort to caudal and transsacral anesthesia in these cases in which I think general anesthesia is contraindicated. Morbidity can be greatly reduced by bearing in mind the subjects presented by Dr. Herbst. Twelve or fourteen years ago there seemed to be two schools of prostatectomists—the one that would not do a suprapubic operation, and the other that refused to do a perineal operation. I took the stand, in a paper presented at that time, that surgeons should stand ready to do either operation and in a given case be prepared to do either the suprapubic or perineal operation, depending on the pathologic changes and the indications. I am more convinced now than ever—and this is borne out in recent years by more surgeons inclining to this practice—that if this discrimination is exercised as a routine the results of prostatectomy, both as to mortality and morbidity, will be greatly improved.

DR. A. L. CHUTE, Boston: It seems to me that one must expect toxic effects in a considerable number of cases if one gives a sacral injection of 50 c.c. of a 1 per cent. procain solution. In spinal anesthesia, we give 5 c.c. of a 2 per cent. solution, and occasionally we see toxic effects. Last summer I had two uncomfortable experiences with sacral anesthesia; they occurred within a week of each other and concerned two men from the same town; one was in his forties, with an impassable stricture; the other was in his seventies with an enlarged prostate. I will not say that these patients were any more toxic than some instances of toxicity that I have seen from spinal anesthesia, but they were equally toxic. They were pulseless, pallid and unconscious, and for a short time I feared a fatal outcome. They both came out all right, though we worked over them some little time. In neither case was the injection made into the spinal canal. Some one said that in a small percentage of sacral injections he did not get a good anesthesia. We have had a large percentage of sacral injections in which we did not get satisfactory anesthesia, a much larger percentage than is the case with spinal injections. It seems in my hands that the sacral is less sure and more dangerous than spinal. I dare say it is due to the technic.

DR. PAUL W. ASCHNER, New York: For some years, in Dr. Beer's service, we have been packing the prostatic bed with thromboplastin soaked gauze and find it very satisfactory in controlling bleeding. I think the preoperative examination should always include a roentgenologic examination to detect silent stone in the kidney, and cystoscopy should include the injection of indigocarmin to be sure of the function on both sides. Epididymitis occurred in 20 per cent. of the prostatic cases in a series I investigated, and I think it is justifiable to do a double vasectomy to prevent epididymitis. Last week a young man entered the neurologic service for sciatica. He was given an epidural injection of procain, 40 c.c. of a 1 per cent. solution, and died within five minutes. A necropsy was held, but no cause was found in the viscera. No spinal examination was permitted. I have seen several bad reactions from sacral anesthesia, and I still depend on gas-oxygen for prostatectomy. I think that any patient who can stand a suprapubic operation can stand gas-oxygen anesthesia.

DR. W. CALHOUN STIRLING, Washington, D. C.: I agree with Dr. Chute regarding the value of spinal anesthesia in prostatic surgery. My experience bears out his remarks regarding its low toxicity. I have not found sacral anesthesia to be entirely devoid of toxicity, as is so frequently claimed for it. In the hands of an expert the failures in using sacral anesthesia have been reduced to about 25 per cent. Ethylene gas is proving very satisfactory as an inhalation anesthetic and gives promise of supplanting gas-oxygen in this field. The patient is better relaxed; the skin is pink and there is less asphyxia.

DR. P. S. PELOUZE, Philadelphia: Regarding the morbidity following prostatectomy I can speak only from the cystoscopist's standpoint. One should consider seriously the influences that the patient's own habits of urination may have on his outlook following operative procedures on the bladder. In some of these cases, the act of straining to empty the bladder is unquestionably the cause of complications. The patient subjects the bladder to a high degree of back-pressure, which in itself is a menace. Not only can it keep a suprapubic wound from healing, but it is also a possible cause of the uremia seen in some postoperative cases with the advent of urethral urination. I have seen two cases of diverticulation and many cases of marked trabeculation and sacculation of the bladder in patients without any urinary obstruction whatever, who have given a history of having strained at urination for many years.

DR. PARKER SYMS, New York: I have been interested in hearing something that is entirely new to me, and that is of trouble following sacral anesthesia. I have used it extensively since 1918 and have read many reports concerning it, and it is a surprise to me to hear of bad results. They should not occur. I have seen no bad reactions. One must be careful that he is not injecting the fluid into the veins or into the spinal membranes. We have just heard so much of hemorrhage, but I would say that in the operation as performed by myself this is absolutely not a feature. My patients are able to be up and are out of bed the day following their operation.

DR. ROBERT H. HERBST, Chicago: Whether we should remove nonretention diverticula is a question. We know that most of them do not produce symptoms after the obstruction at the neck of the bladder is removed. In the average case I should be tempted to leave them alone. I think the reeducation of the prostatic patient in the act of urination is very important. Many of these men have gone through months and even years of obstruction, followed sometimes by a protracted convalescence during which time they have forgotten how to urinate and reeducation is quite necessary. I am told that years ago Samuel Alexander used to line up his prostatic patients and direct them to begin the act of micturition, then call a halt, etc., until they showed ability to control the act. I have seen two cases of diverticula at the neck of the bladder undermining the trigon. The results in both cases have been poor. In one, the patient has a suprapubic fistula months after operation, and in the other the function is far from being good, although I have tried to correct this by doing some plastic work on the neck of the bladder.

PNEUMOCOCCIC AND STREPTOCOCCIC PERITONITIS

REPORT OF TWENTY-THREE CASES IN INFANCY AND CHILDHOOD*

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Pneumococcic and streptococcic peritonitis are the most terrible abdominal catastrophes of infancy and early childhood. The infection is most formidable, being associated with the highest scale of mortality. All the cases forming the basis of this paper were observed within the last three years. The disease under discussion is largely confined to infancy and early childhood and is not as infrequent as commonly supposed, constituting about 10 per cent of the abdominal emergencies of childhood. It merits the serious study of the pediatrician, internist, surgeon and laboratory research worker for several reasons: first, its mortality of 100 per cent places it practically at the head of all the death dealing diseases affecting the young. Secondly, the disease appears to be idiopathic. Our experience at present would indicate that neither medicine nor surgery has anything definite to offer in the salvation of these children. Lastly, it is necessary that the recognition of this malady be placed on a firmer basis than heretofore, and that its comparative frequency be borne in mind.

PATHOGENESIS AND ETIOLOGY

All our cases were due either to the streptococcus or to the pneumococcus. The former was usually of the hemolytic variety. Typing of the pneumococcus was not done except in one or two instances. None of our pneumococcic cases showed a pulmonary lesion throughout the course of the disease, as determined by careful physical and roentgen-ray examinations. Almost every case gave a history of a mild upper

* Read before the Philadelphia County Medical Society, Oct. 23, 1925.
* From the Surgical and Pediatric Services of the Mount Sinai Hospital.

respiratory infection or of a more or less severe pharyngeal infection. So frequently, indeed, was the latter the case that we were unable to escape the conviction that there exists a direct relationship between the initial coryza or infection of the throat and the occurrence of pneumococcic or streptococcic peritonitis. In four instances, the diphtheria bacillus was found on culture from the pharynx. Assuming that the germ, whether streptococcus or pneumococcus, does not primarily involve the peritoneum, its transfer to the latter may occur through one of several portals of entry:

1. *By the blood stream.* It has been stated by some observers that the peritonitis is always secondary, not to a single focus, but to a bacteremia. In nine of our cases, positive blood cultures were present. The explanation that the bacteria reach and localize in the peritoneum through the blood stream is probably true in the fulminating type of the infection. When the peritonitis develops secondary to some other lesion, as pneumonia, the infection undoubtedly travels to the peritoneum through the blood stream. On the other hand, peritonitis as a complication of pneumonia is exceedingly rare. Rolleston's [1] figures are eleven cases of peritonitis in 4,454 cases of pneumonia.

2. *By the lymphatic route.* The theory that the lymphatic route is a possible avenue of the infection is at variance with all the known facts of pathology. The normal flow of lymph extends in a contrary direction; i. e., toward the thorax. The ravages of the disease are too widespread and too intense for a lymphatic origin. Fraser states that if we accept the lymphatic theory of this infection, we must believe that a massive lymphatic infection occurs; this has no parallel in pathology.

3. *By the genital tract.* Pneumococcic peritonitis particularly affects girls, in the proportion of 3 to 1. Its predominance among girls is strongly suggestive of the genital tract as the portal of entry of the infection, for the peritoneal cavity of the female is in direct communication with the exterior. In the present series, the cases of pneumococcus peritonitis were confined to the female sex, with but one exception. On the other hand, the cases of streptococcus peritonitis were limited to boys. It is recognized generally that gonococcic infection occurs in this way, and strong evidence has been brought forward that some cases of tuberculous peritonitis in girls owe their development to a genital infection. In three of our cases, the pneumococcus was isolated from a vaginal smear, the peritoneum and the blood. The observation has been repeatedly made that the infection is a disease of the poor classes of society. Our observations tend to confirm the belief that it is the dirty, unhygienic child who contracts pneumococcic or streptococcic peritonitis. The anatomic nearness of the rectum and vagina allows virulent pneumococci or streptococci in the feces to produce a direct contamination of the vaginal tract. In women, the acid reaction of the vaginal secretion greatly reduces the tendency to this infection. McCartney and Fraser [2] strongly favor the belief that the genital tract is the portal of entry of the infection.

4. *By the gastro-intestinal tract.* The gastro-intestinal tract as a portal of entry of the infection fits in with the clinical and pathologic studies of this infection.

1. Rolleston: Clin. J., 1908, p. 319.
2. McCartney, J. E., and Fraser, John: Pneumococcal Peritonitis, Brit. J. Surg. 9: 479 (April) 1922.

The ready susceptibility of children and infants to intestinal disturbances is well known to every clinician. The passage of pneumococci from the oral cavity eventually to be excreted with the feces is a simple physiologic process, which has been noted by Jensen and others. Pneumococci are occasionally found in the intestinal flora, but their occurrence is never common. Cases of perforation of the stomach are reported with resulting peritonitis, due to the pneumococcus. Every one of the cases of this series presented some gastro-intestinal disturbances. Experimentally, however, it is almost impossible to produce peritonitis by feeding pneumococci through the mouth. The experiments of Jensen, and McCartney and Fraser were repeated. Young rabbits were fed with a 10 c.c. broth culture of virulent pneumococci, of which 0.001 c.c. was sufficient to cause death in twenty-four hours, when injected subcutaneously.

COMMENT

The clinical and pathologic studies of the present series of cases seem to favor a hematogenous infection originating either in the upper respiratory or in the gastro-intestinal tract. The children affected were all well nourished, varying in age from 3 months to 6 years; only two of the patients were above the age of 4. The number and the age affected were: 3 months, two; 10 months, four; 1 year, six; 2 years, eight; 3 years, one; 4 years, one; 6 years, one.

The course of the infection and the sequence of symptoms presented a striking similarity in all the patients. The disease, in 90 per cent of the cases, was initiated by a definite nose or throat infection, to be followed, within a few days, by abdominal and gastro-intestinal symptoms which then dominated the clinical picture. This triad of clinical events—sore throat or cold, abdominal and gastro-intestinal symptoms, and sepsis—strongly suggest the hematogenous extension of the infection from the upper respiratory and intestinal tract.

A number of factors concerning the development and course of a peritonitis in the child are worthy of discussion, among them (1) the difference in the position of some of the abdominal viscera, with particular reference to the appendix as compared to that of the adult, and (2) the character and manner of the defensive reaction of the peritoneum of the child.

Appendicitis in children under the age of 2 is an uncommon surgical lesion. An analysis was made from the records of the Mount Sinai Hospital of 100 cases of appendicitis in children; only two occurred in children under the age of 2. The youngest patient was 17 months. One case developed at the age of 2, and the remainder between the ages of 5 and 12. This is in common with the experience of other surgical clinics. Marsch, in a review of 9,000 cases of appendicitis, found 1.1 per cent between the ages of 1 and 5. The great infrequency of appendicitis in the nursling is confirmed by a number of studies carried out with this object in view by Majet, Belas and others.

In view of the extraordinary infrequency of appendicitis in infancy, one of our objects in this contribution is to discuss certain aspects of appendicitis and its relation to pneumococcic and streptococcic peritonitis.

The examination of the fetal appendix shows a direct continuation with the apex of the cecum. The proximal portion of the appendix is wide, whereas its distal portion tapers to a narrow point, the organ resembling in its entirety a small funnel. The large base of the

fetal appendix and the absence of a cecal pouch below its point of origin overcome any tendency to stasis in the appendix. The further caudal growth of the cecum, particularly the lateral saccule, forms a considerable cecal pouch below the origin of the appendix. The appendix assumes its definite adult position at the posteromedial aspect of the cecum. Westenhofer attributes the great infrequency of appendicitis among Chinese to the fact that the fetal type of appendix is the common anatomic type. Appendicitis similarly is almost unknown in the animal kingdom.

That the fetal type of appendix is one of the causes for the infrequency of appendicitis in infancy is, at least, suggestive. It is further suggestive, in view of the pathologic and clinical findings in peritonitis, that the infection is initiated in the region of the appendix. The occurrence of acute abdominal pain during the course of tonsillitis is a common clinical event. In our series of 100 cases of appendicitis in children, 10 per cent of the cases developed during or immediately after an attack of tonsillitis; in almost every one of the cases a very recent history of one of acute infections of childhood could be traced. The appearance of abdominal pain in children during the course of or following convalescence from tonsillitis is not infrequently of grave significance and demands extreme watchfulness. It means an involvement of the lymphoid tissue in the cecum and appendix, which may eventuate in an appendicitis or peritonitis, depending on the age of the patient. The appendix and cecum about it are rich in lymphoid tissue. The tendency and susceptibility of lymphoid tissue to infection and to the harboring of infection are well known. The finding of the diplococcus in appendicitis in children is very common; Jensen asserts that the pneumococcus is the most frequent infective bacterium. At necropsy our cases of peritonitis showed the maximum disturbance about the cecum. There is no viscus or tissue of the abdomen that is more likely to act as a primary infective focus than the lymphoid content about the cecum and the appendix. Appendicitis similarly is rare in the other extreme of life, old age, as the result of obliterative processes in which the glands and lymphoid tissue disappear.

The second factor influencing the course of a peritonitis in infancy is the character of the defensive reaction of the peritoneum. The defensive reaction of the peritoneum in the young is characterized by an extraordinary rapidity of absorption. The formation of adhesions and the encapsulation of a peritoneal infection are not the usual reactions of infancy. The encapsulation and isolation of a peritoneal infection with dense, hard, organized adhesions is rather a process of adult life, producing in some cases the so-called pseudoneoplastic type of appendicitis described by a number of observers.

Peritonitis in infancy is probably not as infrequent as we believe. Every practitioner of experience has observed cases, attended with meteorism, abdominal pain, vomiting, elevation of temperature and other evidences of sepsis that eventually go on to complete recovery. Not a few of these are instances of peritonitis, with recovery as a result of the great absorptive activity of the peritoneum in infancy. In children beginning with the sixth year, the usual dorsomedial position of the base of the appendix and the slight decrease in absorptive power of the peritoneum, as compared to that of the infant, are factors that tend to produce acute appendicitis and not peritonitis.

PATHOLOGY

In the early stages the exudate is limited to the pelvic peritoneum, revealing itself as a pelvic peritonitis. Later the inflammatory process spreads rapidly, and usually within from twenty-four to seventy-two hours blossoms into a generalized, diffuse, purulent, fulminant peritonitis. No primary focal point is discernible. However, examination of our cases strongly suggests the lymphoid tissue of the base of the cecum as the point of entrance of the infection into the peritoneal cavity, for here, both grossly and microscopically, the pathologic changes seem to be the most advanced. The exudate in the initial stage of the disease is filmy in character, somewhat slimy, distributed between the coils of the intestines and rather small in quantity. Its sticky, oily, slimy character definitely establishes the diagnosis. It is only in the later stages of the peritonitis that the peritoneal exudate takes on a frankly purulent appearance. The exudate is always thin, and is most abundant in the pelvis, even in the terminal stage of the infection.

The intestines when exposed at operation are fiery red, swollen and but slightly distended. The inflammatory process is diffuse. The peritoneal surface of the entire intestinal tract is glistening in appearance and deeply injected. There is an exudate covering the serous coat of the intestine, especially marked around the head of the cecum and duodenum. The head of the pancreas as it fits into the duodenum is often diffusely hemorrhagic. The mesenteric lymph nodes throughout the entire mesentery are palpably enlarged. The head of the cecum in its entirety appears almost gangrenous in many cases. The appendix is similarly red and swollen, but this is only a part of the general peritoneal involvement. The meso-appendix is usually normal in appearance.

In all of our cases either streptococci or pneumococci were isolated. Thirteen showed pneumococci and nine streptococci. The organisms were demonstrated on both smear and culture. It is worthy of note that all of the cases of streptococcic peritonitis were limited to boys, and that only one of the pneumococcic peritonitis cases occurred in the male sex.

Blood cultures were positive in 40 per cent of our cases. The leukocytes and differential counts were high in all cases, ranging from 26,000 to 43,000 and from 89 to 97 per cent of polymorphonuclear leukocytes. The mean leukocyte count was 32,000, with 92 per cent of polymorphonuclear leukocytes. The leukocytes and differential counts are of importance in confirming the diagnosis but apparently have no value from a prognostic standpoint.

SYMPTOMS

The onset is abrupt, with high fever. A previous history of a cold or pharyngeal infection with moderate fever was present in 90 per cent of the cases.

Vomiting is an outstanding symptom. It appears early and is frequently the first symptom that causes the physician to be summoned. It is propulsive and persistent. Even the smallest amounts of liquid are ejected. This symptom persists till the end, and nothing controls it. Diarrhea is a constant symptom at the onset. It may persist but is commonly replaced by constipation.

Abdominal rigidity appears early and is the most characteristic sign of the disease. In the quiet child it is not difficult to recognize. In the crying child, the

use of a definite technic of examination is helpful. The following method of examination has proved most useful in eliciting abdominal muscular rigidity in crying children (Lowenburg): The tips of the fingers of the outspread hand are gently placed on the abdomen. As the child momentarily ceases its cry, it relaxes its abdominal muscles. At this instant quick pressure, not too hard, is made on the abdomen with all the finger tips; i. e., the finger tips follow the downward movement of the muscles. In the presence of peritonitis, the instant the slightest increase of pressure is made during the moment of relaxation, the muscles, as if recognizing that they have been caught off their guard, will suddenly react by becoming rigid and will rebound; the anterior abdominal wall suddenly seems to come up to meet the finger tips. The latter reaction occurs much more rapidly than the rigidity that normally evidences itself in the crying child. The rigidity is widespread. If peritonitis is not present, there will be no rebound, no sudden rigidity and fixation of the muscles, and the muscles will not stiffen until the child starts to cry again.

Pain and tenderness likewise are present. Older children complain of the former; younger ones do not. There is nothing characteristic about the pain. The tenderness is widespread and corresponds to the area of the rigidity.

Tympanites may or may not be present early. In the later stages, it is constant and gives the abdomen a doughy feel.

Fever begins abruptly and remains high. Occasionally there are remissions. Preagonal rises may reach 107 F.

The evidences of toxemia do not come on as quickly as one would suppose. The brain certainly is spared until the end, although early convulsions have been noted in a few cases. The majority of these babies remain conscious almost to the end. In the beginning, the typical peritoneal facies is absent. In fact, as the child lies in bed it does not look very ill, aside from a flushed face due to fever. For the inexperienced, it is difficult to reconcile the benign facial expression with their knowledge of what is going on within the abdomen. Only in the terminal stage of the infection does the typical abdominal or peritoneal facies become manifest, indicating that death is not far off. In more than half the cases, however, the benign facial expression persists to the very end. Leukocytosis, as has been noted, is always high.

DIAGNOSIS

The clinical picture presented by pneumococcic and streptococcic peritonitis of infancy is quite unmistakable. It is because the clinician omits to think of this disease that its presence escapes him. Unless one has seen a number of these cases, the thought of peritonitis as a possible diagnosis slips from the memory. Once the diagnosis is suggested, careful clinical examination will disclose many confirmatory subjective and objective data.

The initiation of the infection with a sore throat or cold is so constant that it often definitely clinches the diagnosis. One of the outstanding clinical features of the disease is the excessive and persistent vomiting present early and continuing throughout the entire duration of the illness. In a number of cases it was projectile in character, suggesting an intense irritation of the central nervous system. Even water is ejected almost immediately. The general appearance is not that usually observed in cases of peritonitis. The facial expression is not that of a patient profoundly ill and is in great contrast with the definite local signs of peritonitis. This great contrast between the benign appearance and the abdominal findings is of considerable diagnostic significance. The rigidity is widespread and corresponds to the area of pain and tenderness. In primary peritonitis the leukocyte count exceeds 20,000. In our series of twenty-three cases it averaged 32,000, with 92 per cent polymorphonuclears.

The diagnosis in all our cases was confirmed by peritoneal puncture. If peritoneal puncture is performed early, the exudate appears as a drop of glue exuding from the open end of the hub of the needle. Because of the sticky character of the exudate in the initial stage of the infection, its scanty amount and its almost colorless appearance, the peritoneal puncture may seem to give a negative result. Gentle suction with a Luer syringe, however, and careful technic will usually be rewarded by a few drops, and sometimes more, of the exudate. Smears and cultures show either streptococci or pneumococci. Aspiration of the peritoneal cavity for diagnosis seems a safe and perfectly rational procedure. Puncture of the intestines by such procedure is attended with theoretical rather than real danger. We have never experienced any untoward effect, immediate or remote, either from peritoneal puncture done as a diagnostic procedure or from the intraperitoneal injection of saline or other solutions for therapeutic purposes.

It is impossible to distinguish the streptococcic from the pneumococcic type of peritonitis without a peritoneal puncture or without cultural studies made at the time of operation. Blood cultures offer confirmatory evidence but are of little help in forming an early diagnosis. The frequency of the streptococcic form in the male should be borne in mind.

The greatest difficulty arises in distinguishing this form of peritonitis from that associated with or due to a ruptured appendix. Appendicitis, as has been noted, is an uncommon abdominal lesion in children below the age of 3. In appendicitis the temperature is not apt to be so high; the leukocyte count is commonly below 20,000. The patient appears more ill and seems to suffer more acutely; the facial expression is not one of composure, and vomiting is seldom so continuous. Abdominal rigidity and tenderness sooner or later, unless rupture has taken place, become localized to the right lower quadrant. Careful rectal examination often reveals tenderness and fulness on the right side. In appendicitis, constipation is quite the rule, while diarrhea is constant in the early stages of primary peritonitis.

The well known occurrence of abdominal symptoms in cases of acute intrathoracic disease in children may be responsible for much confusion in the recognition of primary peritonitis. Reliance must be placed on careful physical examination of the chest. In cases that continue doubtful, resort must be had to the roentgen ray.

PROGNOSIS

One can only harbor extreme pessimism when confronted with a mortality of 100 per cent. The mortality rate in the experience of other observers does not match the high level reached in the present series. When one reviews a considerable number of reports of cases of pneumococcic peritonitis, one finds that the death rate is misleading, for every type of this infec-

tion is inclusively grouped; witness, for example, Koennecke's [3] careful study of twenty-seven cases, with a total mortality of 55 per cent; Rohr's [4] series of eighty-eight cases with 86.3 per cent cured; Jensen's [5] review of some ninety cases with a 64 per cent mortality, and Fraser and McCartney's series, with a 42 per cent mortality. If the cases forming the basis of the foregoing studies are carefully culled and sifted, the mortality of diffuse pneumococcic and streptococcic peritonitis in infants is not far distant from that which we experienced. Rischbreth [6] found a mortality of 88 per cent in collected statistics from the London Hospital.

Considering peritonitis generally, the importance of the age of the patient and the type and character of the infection, particularly the former, sway the balance between recovery and death. The great proportion of our patients were children under the age of 3. In the patients above the age of 6, at which time more definite attempts at localization become evident, the mortality rate tends to drop to lower levels. It is the encapsulated form of peritonitis that gives the lower mortality rate. The encapsulation of peritoneal infections is not the defensive reaction of infancy.

Our mortality forms a striking comparison with the mortality of appendicitis in children. In a series of 100 cases in which operation was performed at the Mount Sinai Hospital, the age of the patients varying from 18 months to 12 years, the total mortality was 1 per cent.

TREATMENT

The problem of treatment is in no way similar to that encountered in the usual type of diffuse peritonitis, for pneumococcic or streptococcic peritonitis present no discernible infective focus; if the latter exists, it is unknown. Eighty per cent of our cases were subjected to laparotomy, drainage of the peritoneal cavity and the routine removal of the appendix. In three of the cases the peritoneal cavity was closed without drainage. Five of the patients were not operated on in the hope that localization might take place. Whether treated surgically or not, the duration and intensity of the infection pursue a similar course. Drainage of the peritoneal cavity in our experience has no effect in arresting the spread of the peritonitis even when the operation is done early. Notwithstanding a mortality of 100 per cent, we believe for two reasons that no alternative other than operation in the very early stage presents itself at present: First, there is always the possibility that an error in diagnosis may have been made in reference to ruptured appendix, and an operation may be the only means of bringing this to light. Secondly, all these cases begin as a pelvic peritonitis. The amount of exudate is at first scanty, later becoming abundant and frankly purulent. It would therefore appear reasonable that some means of exit should be provided for this continuous increase of peritoneal edudate. To delay operation awaiting localization is in our experience an elusive hope. While there is little doubt that pus may be absorbed and disappear from the peritoneal cavity, it is one thing for the peritoneum to absorb pus and quite another for the system to absorb toxins.

Aside from the question of operation, every effort must be made to overcome the profound sepsis that sooner or later dominates the clinical picture. The usual methods of combating the sepsis have been without avail. Mercurochrome-220 soluble, gentian violet, antipneumococcic and antistreptococcic serum, pneumococcus antibody solution, types I, II and III combined, all were equally useless in combating mortality, as were glucose solution and 1 and 2 per cent solutions of sodium chlorid used intraperitoneally, subcutaneously and intravenously.

McCartney and Fraser have suggested early transfusion. To be of use at all, this must supposedly be employed as soon as the evidences of septicemia make their appearance. Later the heart may be so weakened that the quantity of blood to be introduced must necessarily be so small that relatively little beneficial effect can be expected. Transfusion and transfusion exsanguination were also utilized without perceptible effect.

Costain [7] has proposed drainage of the thoracic duct (lymphacostomy) as a useful adjunct for the relief of the toxemia. He reports a complete recovery by this means combined with transfusion exsanguination in one patient with pneumococcic peritonitis, aged 9 years.

In order to establish a definite and exact technic for lymphacostomy, a considerable number of dissections of this structure were carried out at the Baugh Institute of Anatomy of the Jefferson Medical College. Departures from the conventional manner of termination of the thoracic duct are so common that a grouping of the several types of termination becomes necessary.

The operation is in no sense a slight procedure. Aside from the great frequency in the anatomic variations of the thoracic duct itself, its nearness to important neck structures, to the mediastium and to the dome of the left pleural cavity makes it an operation not to be undertaken lightly.

The operation is based on the premise that absorption from the peritoneal cavity is largely by way of the lymphatics. Concerning the problem of absorption from the peritoneal cavity, there exists a great dissimilarity of views. Our own findings, which will be reported in a separate communication, based on experiments on animals rather favor the subperitoneal capillary bed as the major pathway of absorption from the peritoneal cavity.

Lymphacostomy combined with transfusion exsanguination, in addition to a laparotomy and drainage of the peritoneal cavity, was done in two cases; both of these patients died.

SUMMARY

1. Pneumococcic and streptococcic peritonitis is a comparatively frequent abdominal lesion in infancy and early childhood. The great majority of our cases occurred in children under the age of 3.

2. More than 90 per cent of the cases were preceded by a definite pharyngeal infection or coryza, the latter antedating the onset of the abdominal symptom by from four to seven days.

3. The clinical picture is characteristic. Differentiation of the streptococcic from the pneumococcic type can be made only by means of smears or a culture of the exudate.

4. The peritonitis always begins as a pelvic peritonitis.

5. An early operation is recommended to prevent any error in diagnosis and to give an outlet for the peritoneal exudate.

3. Koennecke: Beitr. z. klin. Chir. **115**: 408, 1919.
4. Rohr: Mitt. a. d. Grenzgeb. d. Med. u. Chir. **23**, No. 4.
5. Jensen: Arch. f. klin. Chir. **60–70**: 1134, 1903.
6. Rischbreth: Quart. J. Med. **4**: 205, 1910-1911.

7. Costain, W. A.: Lymphaticostomy in Peritonitis, Surg., Gynec. & Obst. **36**: 365 (March) 1923.

6. All supplementary measures directed toward overcoming the profound sepsis that sooner or later dominates the clinical picture have been in our experience without avail.

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A CASE OF INFANTILE DIABETES TREATED WITH INSULIN

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Infantile diabetes is comparatively rare, and until the advent of insulin such cases presented a grave prognosis. Even when the diabetic baby lived for a time, its development and nutrition were greatly retarded. Insufficient time has elapsed to permit one to say with authority what will be the ultimate outcome of the infantile cases treated with insulin, but the few reports that have appeared to date seem encouraging. Joslin, Root and White [1] have reported the results in a group of patients with the onset of diabetes between the ages of 1 and 5 years; Allen and Sherrill [2] have reported the early treatment of an infant, aged 15 months; Major and Curran [3] employed insulin in a diabetic infant, aged 11 months, with cataracts and Schippers [4] treated an infant, aged 8 months, with a fatal termination after fourteen months of treatment. The following report covers eighteen months' treatment of an infant in whom diabetes was discovered at 16 months of age:

REPORT OF CASE

History.—A male infant, aged 16 months, was seen, May 4, 1924, because of marked drowsiness and constipation. The family history was negative. The past history was essentially negative for delivery, general health and development. For about one month, the mother had noticed that the child had had a ravenous appetite. The frequency of urination had been increased, and for ten days there had been excoriation of the pubic region. There had been a rapid loss of weight from about 26 pounds (12 Kg.). There had been no bowel movement for two days.

Physical Examination.—The patient's height was 32⅞ inches (83.5 cm.), and his weight was 20 pounds (9 Kg.). He appeared acutely ill. The expression was dull; there was marked drowsiness; the skin was pale, cool and dry; the eyes were sunken, and there was a fruity odor to the breath. Digital examination revealed a fecal impaction. The remainder of the examination gave normal findings.

A casual specimen of urine contained 3.5 per cent of sugar and gave a four plus reaction for diacetic acid. The blood Wassermann reaction was negative.

Course.—The fecal impaction was relieved digitally, and the child was admitted to a hospital for treatment. A soda enema was given, followed by proctoclysis of physiologic sodium chlorid solution. Five units of insulin was given at once, and repeated in three and six hours; each dose of insulin was accompanied by the administration of 50 cc. of orange juice by mouth. Several hours after the third dose of insulin, a casual specimen of urine was sugar free, and the reaction for diacetic acid was less marked. Starting the second day, a diluted milk, cream and oatmeal gruel formula was employed, yielding approximately: carbohydrate, 34 Gm.; protein, 17 Gm., and fat, 40 Gm. Nine units of insulin was given in two doses, morning and evening. The baby's general condition and appearance improved rapidly, but on the fourth day he weighed only 19 pounds. The diet and insulin dosage were rearranged gradually, and the patient was discharged on the tenth day, weighing 20½ pounds, on a diet of carbohydrate, 32 Gm.; protein, 25 Gm., and fat, 80 Gm., with an insulin dosage of 20 units in three doses. The diet consisted of a formula made up of milk, 400 cc.; 20 per cent cream, 210 cc.; olive oil, 15 cc.; one egg yolk; oatmeal, 7.5 Gm., and sufficient water to make 32 ounces (950 cc.) or four 8 ounce feedings. Two weeks later, the diet was increased by the addition of milk and cream to carbohydrate, 37 Gm.; protein, 28 Gm., and fat, 86 Gm., and the insulin dosage was increased to 25 units daily in three doses. Several times weekly a small amount of orange juice or cod liver oil was given in addition. For the last seventeen months the patient has refused to take any other diet than the foregoing formula, with the exception of an occasional small amount of carrots. During July, 1924, the insulin dosage was increased to 30 units daily in three doses, and since March, 1925, it has been changed gradually to two daily doses of 6 units in the morning and 4 units in the afternoon. Although the patient has rarely been sugar-free for an entire day, his development has been practically normal. Nov. 5, 1925, eighteen months after the beginning of treatment, his height was 36¼ inches (92 cm.) and his weight was 28 pounds (12.7 Kg.).

COMMENT

The striking feature in this case has been the practically normal increase in height, in contrast to the stunting of growth that was observed in diabetic children before the advent of insulin. This baby was about 1 inch taller [5] at the onset of diabetes than the average normal at that age; he has increased 3⅜ inches (8.6 cm.) in height during eighteen months, which gives him normal height for his age. He was several pounds overweight at onset, but the exact amount is not known; he has gained 9 pounds (4.1 Kg.) during eighteen months and is now about 2 pounds, or 7 per cent, underweight. This degree of undernutrition has been maintained intentionally, because Joslin has shown that a moderate degree of undernutrition is a distinct advantage to the diabetic patient. Joslin's group of cases displays about the same increases in height and weight.

The management of the diabetic infant presents problems that are not encountered in the treatment of older patients. This case has been successfully managed without blood sugar determinations, but we do not recommend the disregard of this helpful adjunct to the control of treatment. Blood sugar readings have seemed valueless in this case because of the apparent lability of the metabolic processes in this child, an observation that was also made by Major and Curran in their patient. We have frequently observed in from two to three hours' time a change from a urine that was free of sugar and diacetic acid to a specimen loaded with both.

Insulin reactions could be recognized only by objective symptoms, since the patient is unable to communicate his subjective feelings. The reactions usually appeared during the night. The child would awaken suddenly and cry out loudly. The skin would be pale, cold and covered with a profuse perspiration. A specimen of urine obtained at this time was always sugar free, and after receiving several ounces of orange juice the patient always became quiet and fell asleep.

Because of the difficulty in recognizing hypoglycemic reactions before they were well developed and because

1. Joslin, E. P.; Root, H. F., and White, Priscilla: The Growth, Development and Prognosis of Diabetic Children, J. A. M. A. **85**: 420 (Aug. 8) 1925.
2. Allen, F. M., and Sherrill, J. W.: Clinical Observations with Insulin, J. Metabol. Research **2**: 803 (Nov.-Dec.) 1922.
3. Major, R. H., and Curran, E. J.: Diabetic Cataracts in an Infant, J. A. M. A. **84**: 674 (Feb. 28) 1925.
4. Schippers, J. C.: Diabetes Mellitus in an Infant Aged Eight Months Treated with Insulin, Am. J. Dis. Child. **30**: 336 (Sept.) 1925.
5. Normal Standards of Height and Weight Taken from Tables of National Child Health Council.

of the apparently very rapid change in blood sugar levels, the attempt to keep the urine constantly sugar free was abandoned. As the patient has grown older, this apparent lability of metabolism has decreased somewhat, and consequently it has been possible to decrease the insulin dosage slightly and give it in two daily injections instead of three.

The decrease in insulin dosage while taking a quite constant and uniform diet suggests some improvement in tolerance. However, this apparent improvement may result to some extent from the fact that since gaining weight the patient has received less food per unit of body weight.

This patient is fortunate in having a very intelligent and cooperative mother, thus making the opportunity for observation almost ideal. His further development will be watched with interest.

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EFFECT OF COMPOUND SOLUTION OF IODIN AND REST IN SURGERY OF EXOPHTHALMIC GOITER *

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For many years, iodin has been known to be of value in the treatment of disorders of the thyroid gland. Marine, in 1911, showed that iodin would produce involution in a hyperplastic thyroid gland and recommended the use of iodin to prevent hyperplasia of the thyroid. Neisser used potassium iodid in 1920 for treating exophthalmic goiter and reported definite improvement in eight cases. Loewy and Zondek, in 1921, published a similar series of results. Dr. H. S. Plummer was the first to show conclusively the great value of iodin in the treatment of exophthalmic goiter, and to him the credit for the present extensive clinical application of this medicine must be given.

Compound solution of iodin (Lugol's solution) has been used in 200 cases of primary hyperthyroidism in the clinic. Many patients come to the clinic who have had iodin in this or some other form, in length of time varying from a few days to two years. Many of our earlier patients were given the solution irregularly. Many of the cases are too recent for analysis or have data too incomplete to permit analysis. Out of the entire group, sixty-nine cases have been selected for detailed study. These cases have been selected, first, because they were all cases of severe primary hyperthyroidism; secondly, because none of the patients had had iodin before admission, and thirdly, because all received iodin and were carefully followed with basal metabolic studies before and after operation. None of the other cases were omitted from this group for any reason other than incomplete data or irregular, uncontrolled or unknown iodin medication.

As nearly as possible, the patients have been treated throughout their illness along the same general plan. They have been kept in bed after admission to the hospital, with the exception of a few less severely toxic cases, who have been given lavatory privileges. Fluids have been given as freely as possible, and every patient has been urged to eat as much food as possible. Extra meals have been given whenever the patient could eat them. During this period, the total calories consumed have averaged from 2,600 to 2,900 in twenty-four hours. On the morning after admission, a basal metabolic test has been done, and this test repeated either daily or every other day while waiting for operation.

In patients not dangerously ill, we have waited until after the first metabolic test before giving compound solution of iodin. The treatment of the severely toxic cases has consisted of the immediate administration of the solution without waiting for the preliminary metabolism tests. In treating the latter type of case, we have endeavored to give from 50 to 100 minims (3 to 6 c.c.) of the drug within the first twenty-four hours after admission. It has been given in divided doses of 5 or 10 minims (0.3 or 0.6 c.c.) each, by mouth and rectum. It may be given subpectorally, if necessary, well diluted in salt solution.

The drug should be well diluted whether given by mouth or by rectum, and 5 minim doses given repeatedly are preferable to single large doses. We have found that compound solution of iodin diluted with cool water is not unpleasant to most patients. Occasionally it is preferably diluted with milk. It may be given by dropping the requisite amount on a piece of dry bread.

To the patients not dangerously ill on admission, we have given 10 minims of the solution three times a day. This is continued during the preoperative period and for several days after operation. In cases in which we have anticipated a serious postoperative reaction, we have doubled this dose on the day preceding and the day of the operation. It is essential that the drug be continued through the operative period if reactions are to be avoided.

When we have performed a subtotal thyroidectomy in multiple stages, we have continued the use of compound solution of iodin during the entire interval between the operations. It has been our custom to give but 10 drops a day, however, during these intervals. In general, the use of the solution has been omitted four or five days after the operation is completed.

The effect of iodin on the structure of the thyroid has recently been studied microscopically by Dr. R. B. Cattell in this clinic. He has shown that both the iodin content of the hyperplastic gland and its pathologic structure are changed markedly by sufficient iodin therapy. The papillary projections with high epithelium are replaced by vesicles lined with low epithelium and filled with colloid material after iodin administration. The iodin content of 200 glands has been studied by Dr. Cattell, and he has shown a direct ratio between the degree of involution and the iodin content. It has repeatedly been shown that the iodin content of the thyroid is inversely proportionate to the degree of hyperplasia.

Exophthalmic goiter patients who have received large amounts of iodin have invariably shown marked increase in the iodin content of the thyroid gland, and 87.9 per cent. of all of these glands that he has examined have shown involution. It is true, however, that there is a very definite group of patients who show marked involution histologically and a high iodin content in the gland and who, nevertheless, show clinically the presence of severe hyperthyroidism.

To demonstrate in what way and to what extent compound solution of iodin alone affects the symptoms of primary hyperthyroidism is impossible. There are many factors present in the hospitalized patient which may well influence the course of the disease. Of these, rest is most important. We have long known that com-

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plete rest in bed would temporarily, at least, help many of the nervous symptoms of thyroidism. In a few cases, we have kept the patient at complete rest, with no medication for periods of from four days to three weeks, and have never failed to observe at least some slight improvement, due probably to a lessening of the metabolic burden (Chart 1). Hospital routine, regularity of life and freedom from cares and visitors are other factors of importance in the improvement. All of the sixty-nine patients spent at least seven days in bed in the hospital previous to their operation, and some of them spent a much longer time.

There are certain factors which have been constant in our treatment of all cases of primary hyperthyroidism during the last few years whether they have received iodin or not. Every patient has been operated on by the same surgeons, and in nearly every case, has been anesthetized by the same anesthetist. Practically every case has been treated in either the New England Deaconness Hospital or the New England Baptist Hospital and has thus received a very similar type of nursing care. This constancy of factors gives an increased value to such observations as can be made. The same group who five years ago decided what operative procedures an individual patient could endure are deciding this problem today.

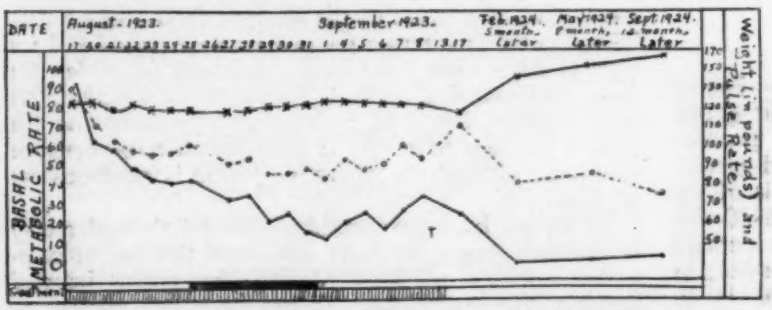

Chart 1.—Effect of rest in bed, compound solution of iodin and subtotal thyroidectomy in a severe case of exophthalmic goiter followed carefully for more than a year: Solid line, basal metabolic rate; broken line, resting pulse rate; lines with crosses, weight in pounds (pulse rate and weight shown at right of chart). At the bottom of the chart the solid black area indicates days treatment with compound solution of iodin, and the cross hatch indicates rest in bed; *T*, subtotal thyroidectomy.

There has been a decided alteration in both the number and the type of operations since the addition of compound solution of iodin and rest to the treatment.

Dr. S. M. Jordan found that in 533 cases of primary hyperthyroidism treated before we began the use of iodin, 38 per cent. of the patients were operated on in one stage and the remaining 62 per cent. in multiple stages. Thus, 35 per cent. had the operation done in two stages, 20 per cent. in three stages, 6 per cent. in four stages and 1 per cent. in more than four stages. Since only compound solution of iodin and rest in bed have been added to the previously established plan of treatment, any change in results may be attributed to these additions.

In the group of sixty-nine cases, these figures are almost exactly reversed, 63.7 per cent. of the patients having the operation completed in one stage, and 36.3 per cent. requiring multiple stage operations. Thus, 21.7 per cent. had two operations; 5.7 per cent. had three operations; 4.5 per cent. had four operations; 1.4 per cent. had five operations, and 2.9 per cent. had preliminary operations only. Of these sixty-nine patients, only 13 per cent. had pole ligations as preliminary measures to the removal of the gland. All others in the group had for their first operation a procedure directed toward removing some part of the gland. In Dr. Jordan's series of cases, about 51 per cent., or more than half the patients, had ligation of one or more poles as a preliminary preparation for thyroidectomy. We believe that in some of the sixty-nine cases ligations were performed in which now, after an extensive experience with compound solution of iodin, a hemithyroidectomy might have been done. For example, during the first five months of 1925, operation has been performed in eighty-five cases of primary hyperthyroidism. Fourteen of these patients have required two operations, each a hemithyroidectomy, and in seventy-one, operation was completed in one stage. No pole ligations have been necessary in this group. It is apparent that the addition of compound solution of iodin and rest in bed to the treatment has decreased the number of multiple stage operations necessary and has largely eliminated pole ligation as a preliminary procedure.

In this series, the average metabolic rate on admission to the hospital was +77. After rest in bed and the administration of compound solution of iodin, the basal metabolic rate before operation averaged +47 for the group. There was, therefore, an average drop of 30 points, which can be ascribed to the influence of rest and the solution. It is necessary to note what percentage of patients showed no drop in rate and what effect the rate drop may have had on the patients' ability to withstand operations. Five patients out of the sixty-nine (7.2 per cent.) failed to show the usual or a satisfactory drop in metabolic rate after taking the solution. In one of these five cases, the rate showed no variation, and in another it rose two points. There were six other patients who showed no evidence of clinical improvement after taking the solution, although each of the six showed a well marked drop in metabolic rate. It is important at this point to state that the degree of drop in basal metabolic rate following the administration of compound solution of iodin is not a reliable guide to the extent of the patient's ability to withstand operation. The following case illustrated this point very clearly to us early in our experience with the solution:

A man, aged 50, severely toxic with primary hyperthyroidism and also suffering from diabetes, was given compound solution of iodin and rest in bed. His diabetes was readily controlled by Dr. E. P. Joslin. The metabolism on admission was +72. This fell in nine days to +24 and clinically the patient was strikingly improved. He was operated on and a subtotal thyroidectomy was done in one stage. The condition during the operation was most satisfactory, the pulse rate at no time being elevated above 120. Ten hours after operation, the patient developed a most severe postoperative thyroid reaction, and, in spite of large doses of compound solution of iodin and of all other measures, died in intense thyroidism. This case resembled in every way the reaction we had been accustomed to see in patients who had had no compound solution of iodin.

In six of the eleven patients to whom we have said that the solution was of no apparent benefit although the rate fell appreciably, multiple operations were thought necessary. We believe that a patient entering the hospital with extreme thyroidism must still be looked on as a serious risk regardless of the drop in metabolic rate after the administration of compound solution of iodin. The symptomatic improvement noted following the administration of the solution and rest

in bed is frequently very marked. As Plummer has stated, the nervous symptoms are particularly affected. The delirium of hyperthyroidism has disappeared more quickly than we have heretofore seen it disappear. The tremor is often less marked and so also is the patient's sensation of unrest and "nervousness." The pulse rate usually averages much lower, and the patient frequently states that her heart no longer pounds as hard as before admission. In some few cases the degree of exophthalmos has grown distinctly less. We have seen no marked increase in weight during the administration of the solution. Although we have not infrequently noted improvement in symptoms in patients who were resting in bed with no medication, we are convinced that we never have seen such constant and radical improvement with rest alone as we have observed when compound solution of iodin was added to the treatment.

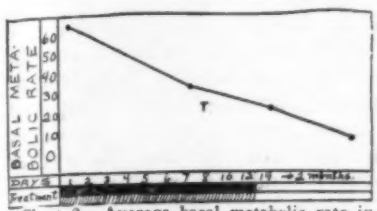

Chart 2.—Average basal metabolic rate in forty-four cases of exophthalmic goiter treated with rest in bed, compound solution of iodin and subtotal thyroidectomy in one stage: Solid black line at base of chart, days of compound solution of iodin administration; cross hatch, days in bed; *T*, subtotal thyroidectomy. Metabolic rate taken two months after operation in twenty-five of these cases.

Calamities may result even while patients are under treatment with the solution, as was shown by the following case:

A woman, seen early in our experience with compound solution of iodin, severely ill with primary hyperthyroidism, entered the hospital with a metabolic rate of + 84. Under treatment with the solution and rest in bed, the metabolic rate fell to + 43. Aften ten days, the patient was operated on. Both superior poles were ligated with little postoperative reaction. A week later, she left the hospital to rest at home in preparation for the next operation. She took 10 drops of compound solution of iodin daily after leaving the hospital and was apparently improving rapidly. About one month later, she was greatly upset by the screams of a child injured by an automobile in front of her home. Two days after this, the patient returned to the hospital suffering from a severe exacerbation of thyroidism with nausea, vomiting, diarrhea and delirium. She was given large doses of the solution in addition to morphin and forced fluids, but without improvement. She died after two days of uncontrollable hyperthyroidism.

We have noticed in many patients an improvement in metabolic rate with no accompanying change in subjective feelings. The individual patients vary so greatly in their estimates of how they feel that no great emphasis can be placed on this point alone. It is true, nevertheless, that we not infrequently find patients who have had a well marked drop in metabolic rate and pulse rate and yet can note no change subjectively. All of these patients have felt markedly improved after thyroidectomy.

The postoperative course of these patients after preparation for operation with compound solution of iodin and rest is entirely different from that to which we had been accustomed before employing it. A severe postoperative thyroid reaction is now almost unknown. In this group of sixty-nine cases there was but one, the patient already mentioned on whom we performed a subtotal thyroidectomy, because of the marked improvement in the metabolic rate. The general condition of the case after operation is rarely such as to cause any anxiety. The pulse rate rarely goes above 160 even in the most severely toxic case, and the incidence of postoperative auricular fibrillation is much less. Increased tremor, wild excitement and great restlessness are not seen.

A subtotal thyroidectomy was done in one operation in forty-four of this group of sixty-nine cases. With the exception of the case already mentioned, of severe thyroidism plus diabetes, there was little or no postoperative thyroid reaction in any patient. As is shown in Chart 2, the average metabolic rate for the forty-four patients was + 66. With rest and the administration of compound solution of iodin, this rate fell to + 36 in seven days. Six days after operation, the average rate was + 22. In twenty-five cases of this group that we examined subsequently, the average rate two months after operation was + 8. Although the graphic chart does not show it, we have found that metabolic rates below normal are more frequent since the use of compound solution of iodin. In those cases having had the solution, we believe that, because of the involution of the thyroid tissue, it is wise to leave a larger section of thyroid gland behind than has heretofore been the custom.

In certain cases, the rate has been still elevated after thyroidectomy, although clinically the patient has been much improved. It is usual in these patients for the metabolic rate to reach normal within from two to four months after operation.

In eleven cases in this group, the operation was divided into two stages, each of which was a subtotal hemithyroidectomy. Some of these operations would now be done in one stage, since we are more familiar with the condition of patients after treatment with compound solution of iodin and with their ability to withstand operation. The average rate of this group of eleven cases on admission was + 62, which fell after a week of treatment to + 39 (Chart 3). After subtotal hemithyroidectomy, the average rate of the group was + 26. It is to be noted in Chart 3 that during the interval between operations the average metabolic rate rises in this group to + 33. After the second hemithyroidectomy, the rate fell rapidly to + 15, and the average rate for the group two months later was + 11. It is seen from this chart that the general trend of the metabolic rate drop is about the same whether the operation is a subtotal thyroidectomy or two subtotal hemithyroidectomies. It is particularly interesting to note that one week after a subtotal thyroidectomy, the rate is only 3 points lower, on the average, than one week after a subtotal hemithyroidectomy. Certainly a comparison of the final results in these two charts leaves no doubt that the removal of the gland by two subtotal hemithyroidectomies gives results fully as satisfactory from the point of view of the drop in metabolism, as a subtotal thyroidectomy in one stage. The clinical improvement corresponds to this change in metabolic

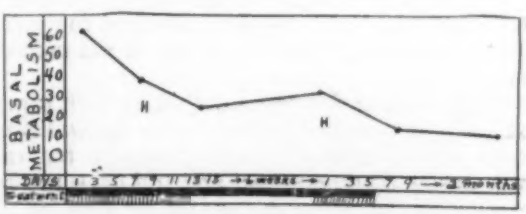

Chart 3.—Effect of rest in bed, compound solution of iodin and thyroidectomy in two stages — right and left subtotal hemithyroidectomy — in eleven cases of hyperthyroidism: Solid black area at base of chart, days of compound solution of iodin; cross hatch, rest in bed; *H*, subtotal hemithyroidectomy.

rate. For this reason, we feel that whenever the patient's behavior on the operating table is such as to cause the slightest doubt as to her ability to withstand the entire operation in one stage, there should be no hesitation in dividing the operation and removing but one half of the gland at this time.

In Chart 4 are grouped seven patients, each of whom had at least three operations. These operations consisted of superior or inferior pole ligations, followed by two hemithyroidectomies. In some of the cases, the poles were tied one at a time on different days so that, in one case, the patient made five trips to the operating room before the thyroidectomy was complete. The average rate of this group on admission to the hospital was + 87, which fell only to + 56 under preoperative treatment with compound solution of iodin. It is to be noted that these ligations produced only a 6 point drop in metabolic rate on the average in these cases, and that there was a marked rise in rate to + 74 during the six weeks interval before the first hemithyroidectomy. Furthermore, although there was an average drop of 23 points in the metabolic rate after this first hemithyroidectomy, the rate after this operation was still 3 points higher than it had been after the ligations.

During the six weeks interval preceding the final hemithyroidectomy, the rate again rose, reaching + 64. On discharge, the average rate for the group was + 42.

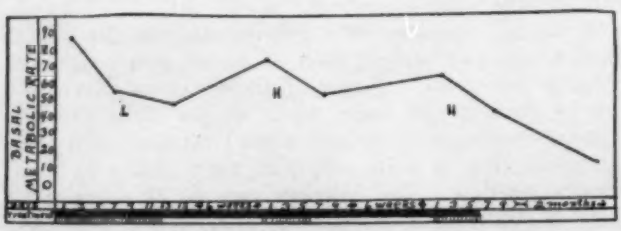

Chart 4.—Effect of rest in bed, compound solution of iodin and multiple stage operation on the basal rate in seven cases of severe hyperthyroidism: *L*, one or more ligations; *H*, subtotal hemithyroidectomy; solid black area at base of chart, days of compound solution of iodin; cross hatch, rest in bed.

Two months later, the rate in the four cases that have been seen was normal. From these cases and the next group to be mentioned, we have the impression that pole ligation does not produce as beneficial effects when compound solution of iodin is being used as was the case before this medicine was adopted. On the other hand, it is obvious that in this group of patients the metabolic rate was higher to start with and the patients were more seriously ill than in either of the preceding groups.

In only one case in this series did we tie both superior poles at one operation and follow this in six weeks with a subtotal thyroidectomy. In this patient, the metabolic rate was + 86 on entrance and fell to + 54 under treatment with the solution. After ligation of both poles, the rate rose to + 79. The patient remained in the hospital under our observation while waiting for the second operation. The rate rose during this interval of seven weeks to + 85. A subtotal thyroidectomy was performed and presented no technical difficulties. As the operation was about to be completed, the patient's heart, which had been regular at a rate of 140, suddenly ceased beating and the patient was dead. What the pathologic basis for this occurrence was, we are unable to state. In one other patient, both superior poles were tied at one operation with apparently good results. This woman, however, as has been shown earlier in the paper, returned to the clinic four weeks later to die of severe thyroidism before any further operation could be attempted. The pole ligation had been of no value in preventing this occurrence.

We have frequently observed the effect of administering compound solution of iodin over long periods without any operation for removal of the thyroid tissue. It appears that in such cases the beneficial results persist for a period of time varying from a few weeks to six months. At no time in this period is the patient completely well even though she is benefited by the treatment. Exertion results in rapid and pounding heart action and abnormal fatigue. The patient is still toxic and so remains until effectual measures for the elimination of toxicity are completed. Furthermore, we frequently see patients who have taken compound solution of iodin for many months before admission, who have first improved clinically and have then returned to their previous condition of toxicity or a more serious one. In these cases, we have not been able to obtain any marked improvement by rest in bed and administration of the solution. In many cases we have noticed that the metabolic rate will drop with the use of the solution and rest to a well marked degree. If then the solution is omitted, the rate rises to a higher level than before and will not again return to its former level for some weeks.

Two deductions may be made from these observations. First, that there is a certain time, usually within two or three weeks of the beginning of the administration of compound solution of iodin, in which the metabolic rate drop is greatest and the clinical improvement most marked. This is the optimal time for operation on the thyroid gland. Operation at this time offers the patient the greatest degree of safety with the fewest possible operative stages. Once lost, this opportunity does not soon return, if it ever returns at all. The second point to be made is that once started, the administration of compound solution of iodin in a case of primary hyperthyroidism should be continued unless it is obvious that the patient is being injured. Once the solution has benefited a patient, its withdrawal without thyroidectomy results in an increase in the toxicity.

There is now a new group of patients coming to the clinic for diagnosis and treatment. In many cases of suspected primary hyperthyroidism, the patients are receiving compound solution of iodin in varying amounts from their family physicians. From their history, some of these have undoubtedly never suffered from thyroidism and are not helped by taking the solution. In other cases, however, the past history is often very suggestive of thyroidism which has been benefited by iodin. In this borderline type of case, the diagnosis is already difficult, and the distortion of the symptomatology by the administration of compound solution of iodin may well render it impossible. At present the wisest course seems to be the omission of further iodin medication, and the reexamination of the patient after an interval of two months. Furthermore, we have found that compound solution of iodin or some other form of iodin medication is given indiscriminately whenever a goiter is discovered, no attempt being made to diagnose the type of thyroid enlargement. This practice has repeatedly resulted in the production of toxicity in benign goiters. It is essential that large doses of iodin shall be given only to patients suffering from exophthalmic goiter.

CONCLUSIONS

1. Compound solution of iodin has been used in the treatment of 200 cases of primary hyperthyroidism in the Lahey Clinic. A study has been made of the effects of this treatment in this group of cases, of which

sixty-nine have been especially selected for detailed presentation.

2. Rest in bed for from seven to ten days before operation is of great importance in preoperative preparation.

3. Before the use of this solution and rest in bed, only 38 per cent. of the patients were operated on in one stage. Since the use of the solution and rest in bed preoperatively, 63.7 per cent. have been operated on in one stage.

4. The number of pole ligations has decreased from 51 per cent. in the past, to 13 per cent. in this series of cases. In the eighty-five cases of primary hyperthyroidism in which operation was performed during the first five months of this year, no pole ligation has been necessary.

5. Of the patients in this group, 7.2 per cent. failed to show an appreciable drop in metabolic rate after the use of the solution and rest.

6. The results following subtotal thyroidectomy performed in one operation or by two hemithyroidectomies are similar.

7. Iodin administered over long periods without thyroidectomy does not cure exophthalmic goiter. Thyroidectomy must be added to produce a complete return to normal health.

638 Beacon Street.

AN OUTBREAK OF FOOD POISONING PROBABLY DUE TO "RAT VIRUS" *

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A typical outbreak of gastro-enteritis was reported, Oct. 23, 1924. The cases were restricted to about 140 persons of 225 eating regularly at the dining room of the women's hall of West Virginia University. Of 193 girl students questioned, 124 were affected with an acute gastro-enteritis, preceded by cramps, chills and fever, and vomiting, and accompanied by muscular pains, diarrhea and prostration. All made a prompt and uneventful recovery. The earliest case reported began at midnight Monday, October 20. Other cases followed rapidly, 109 cases being reported on Tuesday, thirteen on Wednesday, and one mild and atypical case on Thursday. On Wednesday, forty-five girls were prostrated in bed. The peak was between noon and 6 p. m. Tuesday, when thirty-three cases were reported. Subsequent study based on written questionnaires traced the source of trouble beyond reasonable doubt to the Monday noon meal.

During the period of a week preceding to a week subsequent to this outbreak, only two other cases of similar disturbance are known to have occurred in the city of 13,000 population. These were in adults in no way associated with the university, nor was their source traceable.

The sole source of water for the hall comes from the city mains, which furnish a filtered and chlorinated river water. Seven tests on consecutive days of samples from the serving room tap showed a total count of less than 10 colonies per cubic centimeter and no gas in any of five 10 c.c. portions on any of the tests.

The women's hall obtains daily from the university dairy 20 gallons of pasteurized milk and 3 gallons of pasteurized "table cream." Previous to October 21, all milk was pasteurized in a coil pasteurizer on which a record of time and temperature is not available. October 21, a new vat pasteurizer was put into operation, and permanent records are available from this date. The record of bacterial counts made by the dairy department a week after the outbreak shows that the milk had a low count before and after pasteurization. Examination of the payroll of the dairy force showed no loss of time from illness for thirty days preceding the outbreak.

Inquiry of some forty persons living in the city who obtained from 2 to 6 quarts of milk daily from the university dairy revealed no cases of similar disturbance. Furthermore, some 300 pints of milk are drunk daily at the counter by students. No students are known to have been affected except those eating at the hall.

Because the outbreak was not referred to the department of bacteriology until three days after its occurrence, no food except a portion of liver used on Monday was available for examination. Cultures of this liver revealed nothing of significance, and rabbits and guinea-pigs fed and inoculated intraperitoneally with emulsions of it showed no symptoms of intoxication. The butter used at the hall was obtained from a commercial source supplying a large amount to city trade. Only two cases are known to have occurred outside the university, and one of these developed in a person who uses only oleomargarin.

The menu of Monday noon included cold boiled ham, mustard, potato salad, pickled beets, boiled rice and maple syrup, and milk. Data from the questionnaire returned by 199 girls showed no correlation of illness and consumption of any single food. Furthermore, fifty-four girls who were not ill, but who were present at the noon meal, were individually questioned, particularly as to having eaten the ham and salad and as to drinking milk. Again, freedom from illness did not check with avoidance of any food.

However, when data on drinking milk were grouped, it was noted that 65 per cent. of those who were ill drank milk, while only 27.5 per cent. of those not ill drank milk. These, and other data pertaining to the use of cream, indicated that the rate of attack was directly proportionate to the use of milk and cream at the noon meal. These ratios obtained most strikingly among those drinking milk at the noon meal, and were evident to a lesser degree among those present and drinking milk at the evening meal. The attack rate among a small group absent at the noon meal but present in the evening suggested that the causative factor was active to a lesser degree in the evening as well. The only articles common to the two meals were milk and cream, and it is believed that the data available show milk to have been the vehicle of infection.

Nine blood cultures were taken, October 24, from selected acute cases. None yielded any member of the paratyphoid type. Two gave growths of staphylococci and one of streptococci. The others were sterile.

Rectal swabs from thirty-five acute cases were plated directly on Endo medium, and also on this medium after eight hours' incubation of the swabs in 0.5 per cent. glucose broth. By direct inoculation two cases yielded heavy, practically pure cultures of typical paratyphoid growth. Twelve cases gave a predominating paratyphoid type mixed with colon types. Eleven

* From the Department of Hygiene and Bacteriology, West Virginia University School of Medicine.

cases gave from a few to numerous paratyphoid-like colonies mixed with other organisms. Ten cases did not yield any recognizable paratyphoid types. Inoculation of the glucose broth swabs on Endo medium gave paratyphoid-like colonies on all of those which had shown this type on direct inoculation, and on four of those which were negative on direct inoculation.

Thus, of thirty-five acute cases paratyphoid-like colonies were isolated from twenty-nine. All cultures were replated, and single colonies were picked to Russell medium and to agar slants for stock. Five strains were discarded on the basis of the Russell reaction, the others giving typical paratyphoid reaction. Further study of these cultures is discussed later.

On the eighth day after the outbreak, fecal and urine swabs were obtained from seven of the regular cooking staff, and from eleven waiters engaged regularly in serving food. Of twenty-four persons on active service, twelve had reported more or less serious attacks.

Urine cultures yielded nothing of significance in any case. Suspicious cultures were isolated from fecal swabs of four waiters, all of whom had been ill, and from one kitchen girl (M. C.) who was ill. Later study of the M. C. strain showed it to be a typical paratyphoid bacillus, while the waiter strains were ruled out by a delayed lactose fermentation.

Macroscopic agglutination was negative for all strains against a *B. schottmuelleri* antiserum, while the homologous control strain (Chicago B 12) agglutinated to the full titer (1:6,400). The test was positive for fourteen student strains and for the M. C. strain to the full titer of a *B. enteritidis* antiserum (1:6,400), and was negative for ten student strains and for the four waiter strains.

Ten of the agglutinating strains and the ten nonagglutinating strains were inoculated into differential mediums, including twenty-seven carbohydrates. These carbohydrates were prepared in distilled water, filtered by suction through Mandler candles, and added aseptically to a sterile egg-water broth with the Andrade indicator previously described [1] to make a final concentration of 1 per cent. The mediums were tubed aseptically and incubated forty-eight hours for sterility. In the case of dextrin, starch and glycogen it was impossible to filter, and these were autoclaved for ten minutes at 15 pounds' pressure.

Cultural Characteristics.—A. Ten Agglutinative Strains: All were motile, gram-negative bacilli of the paratyphosus size and form. None liquefied gelatin or produced indol; all blackened lead acetate agar and reduced nitrate. In litmus milk a slight acid reaction was followed by beginning alkaline in some cases on the second day, becoming distinctly alkaline in all cases on the third day. Considerable deep reduction of the litmus was characteristic of most strains.

All the agglutinative strains fermented glucose, levulose, galactose, *d*-mannose, maltose, *l*-arabinose, *l*-xylose, trehalose, rhamnose, *d*-mannitol, dulcitol, sorbitol and adonitol with acid, coagulation and gas. All gave slow fermentation in dextrin and glycerol. Gas may have been formed, but as a result of the late coagulation of the medium, it was not observed. (It was interesting to note that these strains all differed uniformly from the rapid fermentation with gas in the latter two mediums inoculated with a control strain of *B. enteritidis.*)

None of the ten strains fermented lactose, saccharose, raffinose, *d*-lyxose, melezitose, salicin, inulin, starch, glycogen, erythritol, perseitol, or inositol. (The control strain of *B. schottmuelleri* fermented inositol with acid, gas and coagulation, while the control strain of *B. enteritidis* did not ferment it at all.)

A remarkable uniformity was observed in all reactions except in dextrin, dulcitol, adonitol and glycerol, in which delayed and slight fermentations were determined with considerable difficulty. Thus all ten strains which agglutinated with the type *B. enteritidis* antiserum and gave the same cultural reactions would appear to be strains of the same organism. However, certain variations, scarcely describable, but uniform to the ten cultures, suggested a slight difference from the control strain of *B. enteritidis* (Chicago University E 51). The loose, soft agglutination was also of an entirely different character from the granular, flaky agglutination of the homologous control strain.

P. Ten Nonagglutinating Strains: All ten strains were gram-negative bacilli, slightly thicker and more elliptic than typical paratyphoid bacilli. All rendered litmus milk acid for thirty days, and all formed indol. None blackened lead acetate agar or liquefied gelatin.

From the reactions obtained in the twenty-seven carbohydrate mediums, seven strains resembled closely the nonliquefying *Proteus asiaticus* type, while three strains checked closely with the *Proteus valeriae* (Boycott), as described in Bergey's Manual.

COMMENT

In order to interpret properly the significance of this bacteriologic study, it is necessary to review the information brought out in the early epidemiologic study as having a direct bearing on the source and mode of transmission of the infective agent.

During the period just preceding, flies in the kitchen and dining room had been very annoying. Red ants were an increasing problem for months. Rats and mice were numerous in and about the building. Traps and various poisons for rats were used in the kitchen and storerooms, and it was stated that two dead and mummified rats were taken from behind the kitchen range not long before the outbreak.

On the first visit to the kitchen it was stated that a new rat "poison" had been recommended and used according to directions. The name and directions for preparation at once suggested that this was not a "poison" but one of the several commercial "rat viruses." Further questioning revealed the fact that this virus had been mixed with bread in an old kettle and put in paper bags about the kitchen, storeroom and serving room, and outside the building, October 4. October 24, the kettle in which the virus was mixed was observed on a shelf in a small areaway between the kitchen and the cold-storage room. When it was removed from the shelf, a half-dozen flies flew out of the kettle, where they had been feeding on the bread crumbs adhering to the vessel. A bag of the virus bait was found tied to the leg of the water cooler in the serving room adjacent to the dining room. This bag was taken to the laboratory, where it was kept in a refrigerator until November 1, when some of the bread was softened in sterile water and plated on lactose-litmus agar. On the following day an abundant and practically pure culture of typical paratyphoid bacillus colonies was observed. Three colonies were picked for stock cultures (RVB 1, 2, 3).

November 3, a bottle of the same commercial brand of rat virus was obtained directly from the sales headquarters. This was plated at once, and on the follow-

1. J. Infect. Dis. 33:6 (July) 1923.

ing day typical paratyphoid bacillus colonies were found in pure culture. Three colonies were picked for stock cultures (RV 1, 2, 3).

The three RVB and the three RV strains all agglutinated to the full titer of the *B. enteritidis* antiserum, but gave a soft, flaky agglutination sharply contrasting with the granular agglutination of the control strain (Chicago E 51). In this respect they behaved identically with the fourteen strains isolated from the students.

The cultural reactions of RVB 1 and RV 1 were identical in all essential respects, including delayed fermentations, with those of the ten agglutinative student strains.

The type *B. enteritidis* antiserum was absorbed by agar growths of RV 1 (from the commercial rat virus package) and with the strain 23-1 (from the rectal swab of an acute food poisoning case). Three absorptions were necessary completely to remove all agglutinins for the absorbing strains, after which each absorbed serum still agglutinated the *B. enteritidis* type strain (Chicago E 51) completely at a dilution of 1:600, strongly at 1:1,200, weakly at 1:2,400, but not at 1:4,800. The absorbed antiserums were tested against four other agglutinative student strains, none of which agglutinated.

Antiserums against strains RV 1 and 23-1 were prepared by inoculating rabbits with heat-killed suspensions. Progress was delayed by the death of three animals, the suspensions being apparently highly toxic. A titer of 1:5,120 was finally obtained against RV 1. The 23-1 rabbit attained a titer of 1:2,560 and died after a test bleeding. Both serums agglutinated two strains of *B. enteritidis* (Chicago E 51 and E 52) to the full serum titer.

The RV 1 and 23-1 antiserums were absorbed simultaneously with live cultures of RV 1, 23-1, E 51 and E 52. Two absorptions were required to remove the agglutinins for the respective absorbing strains. After the second absorption, the absorbed antiserums failed to agglutinate either RV 1 or 23-1.

It appears that, while the strains RV 1 and 23-1 did not completely remove agglutinins from a *B. enteritidis* antiserum, cultures of *B. enteritidis* were capable of completely absorbing agglutinins from the rat virus and 23-1 antiserums.

However, the fermentation reactions and other reactions cited above, together with the failure of the rat virus to absorb completely *B. enteritidis* agglutinins, indicates the existence of specific strain distinction of two organisms very closely related. The student strains checked in every respect with the behavior of the rat virus, and it is believed that the evidence warrants the view that the cultures isolated from fourteen students are strains of the rat virus, not *B. enteritidis*.

From this investigation it appears that the only reasonable explanation of the outbreak lies in the assumption that in some unproved manner the rat virus gained access to some food and was the probable cause of the disturbance for the following reasons:

1. A strain identical in all cultural and agglutinative respects with the rat virus was isolated from fourteen of thirty-five affected students examined from four to six days after the onset of the outbreak.

2. This organism was not isolated from any of the twelve persons eating at the hall who were not made ill.

3. This culture differed from *B. enteritidis* in minor variations on cultural tests, gave a different type of agglutination, and failed to remove completely the agglutinins from a type *B. enteritidis* antiserum.

4. A commercial rat virus was distributed about the kitchen, serving room and storerooms, October 4, just sixteen days before the outbreak. A bag of this rat virus bait obtained from the serving room and tested, November 1, showed the presence of many viable bacteria identical with the subsequently isolated rat virus, and with the fourteen agglutinative strains isolated by rectal swab from acute cases.

5. This bait lay on the floor, which was mopped daily by one of the kitchen assistants (M. C., who first washes dishes; secondly, mops the floor with a string mop requiring hand wringing, and, thirdly, goes directly to the preparation of salads for lunch).

6. The kettle in which the virus bait was prepared stood open in a room adjacent to the kitchen for twenty days without cleansing, and when removed from the shelf, a number of flies were found feeding in it.

7. Many flies and red ants were present in all parts of the kitchen and dining room during the period preceding and following the outbreak.

8. Examination of all members of the kitchen staff and waiters resulted in the isolation of the rat virus type from only one person (M. C.), a convalescent from an acute case. Whether or not she was a carrier before the epidemic could not then be determined.

9. A study of lists of foods eaten by 193 girls tends to eliminate from suspicion all except milk, or milk and cream.

10. While the groups were too small to serve as absolute proof, the data indicate that those who drank milk at noon Monday, October 20, had a higher attack rate than that of the entire group, while those who never drink milk had a significantly low attack rate.

SUMMARY

The epidemiologic evidence, confirmed by bacteriologic and serologic findings, indicates that the outbreak of 123 cases of acute gastro-enteritis among the girls eating at the women's hall, and of twelve cases among the kitchen personnel, was due to contamination of some food with a commercial rat virus, which was distributed just sixteen days previous to the outbreak. Paratyphoid bacilli of the same type were alive in the original bait on the serving room floor twelve days after the outbreak. Flies and red ants were abundant and had access to the baits as well as to the kettle in which the bait was prepared. In addition, at least three persons mopped the floors daily with hand-wrung mops, which undoubtedly had contact with the baits, and from this duty went directly to the preparation of foods.

The epidemiologic evidence indicated that milk, or milk and cream, was the probable vehicle of the infection. If milk was responsible, the contamination evidently occurred subsequent to delivery from the dairy. The isolation of a recognizable organism from fourteen affected students, and the identity of these strains, in all respects tested, with organisms isolated from the rat bait and with the rat virus from the commercial package, serves to support and corroborate the other evidence.

Investigating Delinquency.—If we want to understand delinquency and other forms of abnormal conduct, much of our time must be spent, not in the laboratory that deals with death and disease, but in the consulting room, where there is an investigation into life and the mainsprings of action.—Potts, W. A.: *J. Ment. Sc.* **71**:683 (Oct.) 1925.

THE CYTOLOGY OF THE DIARRHEAL STOOL*

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In a previous paper,[1] I offered a clinical study of the stool as evidence that summer diarrhea is more than the direct effect of heat on the organism. The conclusion was that most cases of summer diarrhea are characterized by an enormous discharge of cells in the stools which can rationally be explained only by an inflammatory reaction due to a local infection. The examination of the fresh diarrheal stool for cells has been a routine in my office for several years, and more than a thousand such examinations have been made.

My first efforts were directed almost entirely to a comparison of the number of cells and the clinical symptoms. In general, a liquid stool that showed more than ten cells to the field (diluted two-thirds with water), under the ordinary low power of a microscope, was regarded as strong evidence of a local infectious process. If, as is the case in most severe enteritides, hundreds of cells were present, the case was beyond doubt one of an infectious diarrhea.

I watched the discharge of these cells from day to day, and directed my therapeutic endeavors by the number of cells. Infants were seen, with fever and digestive disturbances, who showed no cells on the first day but a great increase on the second and third days; this was regarded as a sign that the infection was being thrown off. As the cells diminished, the food was increased; when the cells disappeared, the child was placed on a normal diet.

This examination, supplementing the general clinical symptoms with a laboratory finding, seemed to give a more comprehensive grasp of the situation.

I soon learned to recognize not only a difference in numbers but also a difference in the kind of cells. It was easy to recognize the large mononuclear cell, which I originally called a lymphoid cell, but which recently has been definitely shown to be identical with the endothelial leukocytes—called also giant cell, macrophage and clasmatocyte. I learned to associate this cell with an infectious enteritis, consequently adding to my records not only the number of cells found but also the presence or absence of these giant cells. My own conclusion that these large cells always indicate a discharge of the cell contents of a solitary follicle seems erroneous, since the clasmatocytes have been found in large numbers among the cells of the mucous membrane in bacilliary dysentery. I noted that most of the cells of the infectious enteritis were polymorphonuclear cells.

Other pictures were found, such as shreds of mucus crowded with degenerated epithelial cells—fluid stools that had numerous small cells resembling lymphocytes. The clinical features of these cases were different from those showing clasmatocytes and pus cells.

I tried many times to study stained specimens, but these cells do not stain well. Only the nuclei and sometimes a part of the cell are visible, but by continued practice one becomes more skilful in interpreting the specimen. I now use Löffler's methylene blue and a weak solution of eosin for staining the cells.

The use of Delafield's hematoxylin as a nuclear stain is still better, but it takes more time. Wright's stain may also be used, but it does not give such a clear picture. There is great difficulty in fixing the smear on a slide, probably on account of the small amount of albuminous substance present. The varying acidity of the stool causes a great variation in the tint of the stained cells and makes the interpretation more uncertain.

In spite of these difficulties, I succeeded in getting fairly satisfactory specimens in many instances this summer, and my work confirms in general that of Willmore and Shearman, Haughwout and others.[2] These studies on the cytology of the dysenteric stool have been made mostly in India and the Philippines. To Manson-Bahr, working in the Fiji Islands, is given the credit of first pointing out the diagnostic significance of the exudate in bacillary dysentery. The first comprehensive study of the subject was given by Willmore and Shearman.[3] Subsequent studies by several authors enlarged the field of knowledge. Several studies by Haughwout, of great importance, were printed in Philippine publications and not seen by American readers.

My own attention to these studies was drawn by an article by Haughwout [4] on the early diagnosis of dysentery. These publications lay stress on the differential diagnosis of amebic dysentery, balantidiosis and bacillary dysentery. As most of our enteritides are due to the Flexner dysentery bacillus and, I believe, to the virulent colon bacilli, the characters of the bacillary exudate as summarized by Willmore and Shearman are instructive. Somewhat abridged, they are as follows:

1. Abundant polymorphonuclear exudate.
2. Evidence of toxic necrosis in the cells as evinced by the presence of the "ghost cell."
3. Evidence of intense inflammatory reaction.

To these, Haughwout adds the presence of clasmatocytes in large numbers. I have also found shreds of fibrin in the stools of these patients. No doubt the original lesions produced by the dysentery bacillus are secondarily infected by other micro-organisms, and there is a continuous suppurative process in the intestine extending over a long period. I have found these chronic suppurative processes going on in many cases of marasmus, chronic intestinal indigestion and even celiac disease.

After discussing the cells of the amebic dysentery, Haughwout draws attention to a cellular exudate of a different character, the importance of which to the pediatrician seems very great. I had already observed in my studies that the liquid stools of infants suffering from mucous colitis, exudative diathesis and enterospasm were of a different character. The stools in these cases showed a large amount of transparent mucus, the cells varying in number; usually only five or six were floating in the field, in comparison with many hundreds incorporated in the glairy mucus. But these cells were small, and no macrophages were present. Moreover, the evidence of toxic necrosis was absent. I call this the cell picture of mucous colitis.

Haughwout refers to this picture and cites an intestinal allergy as the cause. He says: "In the early stages, the watery bowel discharges are likely to contain masses of mucus, and if these are examined micro-

* Read before the St. Louis Pediatric Society, Oct. 16, 1925.

1. Zahorsky, John: Summer Diarrhea, Am. J. Dis. Child. 15: 413 (June) 1918.

2. A good summary of these studies is given by Haughwout, F. G., and Callender, G. E.: Internat. Clinics, Series 35; 2: 104, 1925.

3. Willmore, J. G., and Shearman, C. H.: Diagnosis of Dysenteries, Lancet 2: 200 (Aug. 17) 1918.

4. Haughwout, F. G.: Microscopic Diagnosis of Dysenteries at Their Onset, J. A. M. A. 83: 1156 (Oct. 11) 1924.

scopically, they will be found laden with cells, the picture strongly resembling that of bacillary dysentery. However, macrophages and evidences of toxic necrosis will not be present. Polymorphonuclear leukocytes will be very scarce. The exudate will be seen to be composed of mononuclear cells and of polymorphonuclear eosinophils. These two types of cells often will be found in separate portions of the smear."

In several other papers I have published the results of my own methods in the clinical use of examining the stool for the cellular exudate. With the additional data obtainable by staining some specimens, I am convinced that this method of diagnosis will find other adherents. The practitioner wants to know what is going on in the intestine, and the study of the number and variety of cells helps very much. When this is supplemented by a bacteriologic examination, the diagnosis is complete.

It is exceedingly doubtful whether the present fashion of disregarding the stool and what it may teach will lead very far. The general symptoms must be studied, but the cell contents of the stool will show whether the baby is suffering from a localized folliculitis, a widespread enteritis, a colitis or a proctitis, and the therapy can be directed accordingly. Moreover, it is an advantage to the physician to know whether the severe dyspeptic symptoms of the baby are the expression of an allergic enteritis or an infectious enteritis. The treatment is different.

It will take a great deal of study to clear up the cytology of the diarrheal stool, but a beginning has been made.

536 North Taylor Avenue.

ANAPHYLACTIC REACTIONS FOLLOWING ADMINISTRATION OF SERUMS

TO CHILDREN PREVIOUSLY IMMUNIZED AGAINST DIPHTHERIA

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The administration of diphtheria toxin-antitoxin to render children immune to diphtheria is unquestionably a valuable procedure, although having the distinct disadvantage of sensitizing these individuals to horse serum. Subsequent administrations of serums as therapeutic and prophylactic measures undoubtedly are accompanied with the danger of anaphylactic reactions. As a result of the widespread employment of toxin-antitoxin preparations for active immunization of children against diphtheria, clinicians undoubtedly will encounter an increased frequency of the incidence of anaphylactic reaction following subsequent administration of serums to these sensitized patients. I have recently had seven such instances, all of which occurred in children who previously had been immunized against diphtheria.

The first instance occurred following the administration of a prophylactic injection of antitetanic serum to a child who had received immunizing doses of diphtheria toxin-antitoxin one year previously. Promptly following the injection of this serum, the breathing became rapid, and a diffuse erythema of the skin developed, of severe intensity. Ten minims (0.6 c.c.) of epinephrin was administered, which gave prompt relief. One week later, a generalized urticaria accompanied by intense itching and enormous wheals developed. Marked angioneurotic edema appeared, involving the tongue, face, hands and feet. Four subsequent similar attacks of equal severity occurred at intervals of from three to four days.

Five additional cases of anaphylactic reactions were seen following the administration of prophylactic doses of scarlatinal antistreptococcic serum to children exposed to scarlet fever. All the children had been immunized against diphtheria from eight to eleven months previously. In each instance the cutaneous manifestations, such as urticaria and angioneurotic edema, were of such severity as to be alarming. In the most severe of the five cases the temperature rose to 104 F. on the second day, and the child had severe vomiting attacks every half hour for twelve hours, which promptly subsided after a subcutaneous injection of 20 minims (1.25 c.c.) of epinephrin. One day later, vomiting recurred, which again subsided on the administration of epinephrin. At this time an edema appeared, involving the left arm, of such intensity as partially to immobilize the elbow. Six subsequent exacerbations of anaphylactic manifestations of varying severity occurred in the patient at intervals of from one to three days. In this instance, a desensitizing dose of a few minims of the scarlatinal antistreptococcic serum had been injected subcutaneously two hours before the administration of the entire dosage (10 c.c.), but failed to prevent the serum reaction.

The seventh anaphylactic reaction occurred following the injection of diphtheria antitoxin. This child, three months previously, had been immunized against diphtheria, but apparently had not developed an immunity to the disease. The reaction in this instance was much milder than in the other six cases.

DANGER IN USE OF ANTITOXIN CONTAINING HORSE SERUM

Although no deaths occurred among these seven patients, nevertheless the reactions experienced probably should serve as a warning to use care in the administration of serums, derived from horses, to children who have been previously sensitized by injections of diphtheria toxin-antitoxin. A complete avoidance of serum sensitization undoubtedly is highly desirable. As a result of recent studies [1] at the University of Minnesota, a method is being perfected by means of which children may be immunized against diphtheria without the employment of serums. The perfection and standardization of this method unquestionably will prove a distinct and important contribution to medical science.

Attention is called to danger of the occurrence of anaphylactic reactions following the administration of various antitoxins containing horse serum to children who have been sensitized to this serum through diphtheria immunization. Active immunization of the child population against diphtheria is so important, however, that the development of a method by which an immunity to this disease may be acquired without serum sensitization is highly desirable.

1. Larson et al.: Antidiphtheritic Immunization Using Sodium Ricinoleate as a Detoxifying Agent, Proc. Soc. Exper. Biol. & Med. 22: 552-553, 1925.

Clinical Notes, Suggestions and New Instruments

A NEW METHOD OF MOLDING WAX BOUGIE BULBS

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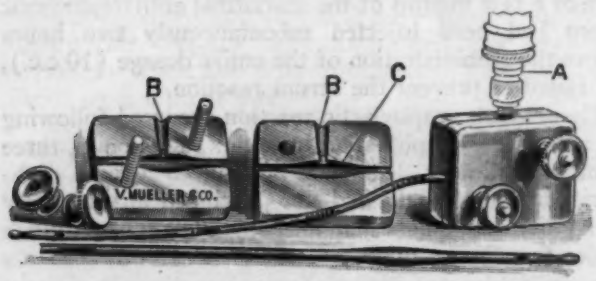
To Guy L. Hunner belongs the credit of establishing ureteral stricture as a clinical entity. After many years of persistent writing and discussion on Hunner's part, American urologists have come to believe that stricture of the ureter is a fairly common lesion, and year by year additional case reports have substantiated Hunner's ideas.

Hunner's method of dilating the ureter is by means of wax bulbs molded by hand, and, before the advent of the solid bulb, was the best method available. As all solid bulbs are imported and consequently expensive, I conceived the idea of molding wax bulbs by machine made molds. If one has a set of dies, these bulbs, after a little practice, can be quickly and cheaply made.

When the wax bulb is used for ureteral dilation, the McCarthy cysto-urethroscope is preferable, as it has none of the disadvantages of the female air cystoscope of Kelly, the original instrument used by Hunner in dilating ureteral strictures. As the ureter is a very delicate structure, any manipulation that is not carried out with the most extreme care will be accompanied by trauma, and more harm than good will result.

So, in order to facilitate careful and regular dilatation, it is absolutely essential to have a dilating bulb that is smooth and symmetrical, and great care must be taken to dilate



Outfit for molding wax bougie bulbs: *A*, syringe containing molten wax; *B*, channel through which wax passes; *C*, cavity for molding the bougie. Below is the catheter with wax bougie.

slowly, always repeating the last size, introducing and increasing only one size at a time. Intervals of from ten to fifteen days should elapse between treatments.

INSTRUCTIONS FOR USE

Each size bougie has its own mold, the size being marked in the French scale on the top of the mold. On one end are the letters O-O, for the purpose of proper assembly.

In making bougies, the two knurled thumb screws are removed and the mold separated. Oil, on a piece of gauze or cotton, is applied to both halves of the mold. It is necessary to see that all parts are covered with the oil, but too much must not be used, as oil should not retouch the catheter or bougie.

A No. 6 catheter or bougie is placed in one half of the mold; the remaining half is replaced and locked tightly with the thumb screws. The mold is placed on edge with the hole in the side upward. This hole is called the "gate" through which the wax is applied.

A metal syringe and proper wax accompany the outfit.

The end of the syringe is unscrewed and into it is dropped about 1½ inches of the wax. The end is replaced and the distal end of the syringe is held over a gas or alcohol flame, while the syringe plunger is gently pressed. When the wax melts to a liquid, a few drops are forced out in order to expel the air. Then molten wax is applied through the gate of the mold, moderate pressure being used. The syringe is removed and the wax is allowed to cool. This may be hastened by holding under running water. When the bougie is removed, the mold is separated and gently lifted out. Should the wax have a tendency to adhere, the "stem" or part that goes through the gate of the mold should be loosened. This stem is cut off with a sharp knife when the bougie is released. Any rough edges can be smoothed with the fingers.

After a little practice it will be found that the bougies are smooth and uniform. They will stand much handling and are semiflexible. Bougies may be removed with hot water. The bulbs may be attached to either a plain or a roentgen-ray bougie or catheter.

30 North Michigan Avenue.

Special Article

THE TECHNIC OF MEDICATION

A SERIES OF ARTICLES ON THE METHODS OF PRESCRIBING AND PREPARING, THE INDICATIONS FOR, AND THE USES OF VARIOUS MEDICAMENTS *

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(Continued from page 37)

I. DUSTING POWDERS

Very fine powders intended for application to the skin are known as dusting powders. They must be free from grittiness, so as to be devoid of mechanical irritating qualities.

A. SIMPLE DUSTING POWDERS

Simple dusting powders, by clinging to the surface, form a covering that to a certain extent protects the skin from contact with air and friction of clothing, and thus lessens itching and burning sensations. In addition to this, some of these powders, which might be called hydrophil because they absorb water, have a capacity for taking up fluid from the surface, thereby exerting a drying action. As moisture is one of the essential conditions for multiplication of bacteria, these powders, by their drying action, tend to inhibit the growth of micro-organisms; hence they have some antiseptic value. This drying action also causes a certain degree of condensation of the tissue, an effect that might be designated as a slight astringency. Sollmann [4] arranges dusting powders in order of their relative water absorbing capacities as follows:

Powder Tested	Weight of Water Held by 3 Gm. of Powder	Retained Water as Per Cent of Powder
Starch (corn)	2.39	80
Kaolin	2.19	73
Fullers' earth	2.09	70
Precipitated calcium carbonate	1.94	65
Talcum	1.84	61
Prepared chalk	1.59	53

From this it is seen that starch and kaolin are more effective water absorbents than chalk or talcum. Nevertheless starch, unless protected by antiseptics, must not be employed on discharging surfaces, as in intertrigo, because of its tendency to decomposition. For such areas, kaolin or fullers' earth would be preferable,

* This is the second of a series of articles on "The Technic of Medication." When completed the articles will be assembled in book form.

4. Sollmann, Torald: Water Absorbing Capacity of Dusting Powders, J. A. M. A. **72**: 935 (March 29) 1919.

though it is well to add even to them a mild antiseptic, such as boric acid (from 2 to 4 per cent) to antagonize decomposition of the absorbed discharge.

Some of these powders, especially fullers' earth, are endowed with adsorbent qualities; i. e., the power of attracting and holding molecules from solution. This may result in a lessening of irritation when irritant substances are thus adsorbed.

These powders must not be used on extensive, profusely secreting, raw surfaces, because of their tendency to cake, or to form a scab by admixture with and drying of wound secretions. This caking favors retention of discharge and by its hardness produces irritation. If, however, the lesions are discrete, even though they are distributed all over the body, dusting powders may still be the best application. In pemphigus vulgaris, for instance, the patient, whose body is almost completely covered with blisters and weeping erosions, is often best wrapped in a sheet on which a large amount (from 1 to 2 Kg.) of talcum has previously been dusted.

Talcum, a fine, white, slippery powder, is perhaps the most commonly used of the dusting powders. It is also by reason of its chemical indifference a favorite diluent for antiseptic and astringent powders.

Of an entirely different nature is lycopodium (spores of the club-moss), a very mobile yellow powder that contains so large a proportion of fat that it sheds water. Another dusting powder that sheds water is zinc stearate,[5] which has the advantage over lycopodium in being white instead of yellow. These lipophil powders are especially suitable for protecting a fatty surface, such as the normal skin, against irritation from watery discharges; for example, the infant's skin against irritation from urine. Once excoriation has occurred and a weeping surface is present, a hydrophil dusting powder such as fullers' earth and talcum is better than the lipophil powders.

For applications to skin surfaces exposed to view, dusting powders as well as other skin remedies might advantageously be given a flesh color. This can be secured by employing a buff powder, such as calamine. If a closer imitation is desired, a small proportion, say 0.1 per cent, of eosin might be added. A still better approximation to human skin color would require more study than physicians are likely to give to this matter. Difference in skin tints forces manufacturers to place on the market a number of differently colored face powders; the perfuming of such powders, so generously practiced by these manufacturers, is another item of elegance usually neglected by the medical prescriber.

Writing prescriptions for simple dusting powders is generally quite unnecessary. In the interest of economy, we do not, as a rule, write formal prescriptions for ordinary and quite harmless articles of commerce. True, this may lead to a loss in the psychic potency of the remedy, for there is mystery to the patient in the unknown or not understood composition. On the other hand, the patient might lose some of his respect for prescription and prescriber should he discover that his prescription called for mere talcum.

B. MEDICATED DUSTING POWDERS

For additional action, these simple dusting powders may be medicated by the incorporation with them of antiseptic, astringent, antipruritic or anodyne agents; or else a slightly soluble powder of desired special action may be used.

Among the antiseptic dusting powders, boric acid is perhaps the most important. It is so mild that it may be used undiluted. It may also be added to some simple dusting powder in almost any desired proportion.

An antiseptic much more powerful than boric acid is salicylic acid, which is employed for the purpose of medicating dusting powders used, for instance, in the treatment of bromidrosis, or excessive and ill smelling perspiration. From 3 to 10 per cent of salicylic acid may be added to talcum or any other hydrophil dusting powder for use in such a condition.

Iodoform not only is an antiseptic dusting powder but also has analgesic potency, by reason of which it is sometimes superior to some of its succedanea, such as thymol iodid. The latter is often preferred, however, because it is devoid of unpleasant odor.

An antiseptic and astringent dusting powder is obtained by mixing silver nitrate with kaolin in the proportion of 1:5,000, as advocated by H. Stuart. "Kaolin," he says, "is to a surgeon what a blotter is to a writer." As it is nonantiseptic it should be sterilized before using, or, better still, armed with a germicide, so that the micro-organisms imprisoned by it may be executed. Stuart believes that silver nitrate is best for this purpose and that a strength of 1:5,000 not only takes care of infection but also fosters healing and has analgesic effect. This powder administered by mouth may afford relief in gastric disorders; it is so harmless that it would require 50 gm. of the powder before an average dose of 0.01 gm. of silver nitrate is given. He advises shopkeepers to keep on hand a large salt cellar full of this mixture, so that it may be applied freely to fresh wounds instead of iodin; for while iodin slows healing, kaolin hastens it.

For purely astringent action, alum, 10 per cent, is perhaps as good as any other agent for incorporation in a dusting powder such as kaolin.

For antipruritic action, menthol, 2 per cent, may be added to talcum and advantagously used, after sponging the affected part with a hot solution of sodium bicarbonate. The excess of solution is mopped off, so as to leave the skin somewhat moist; this causes the powder to adhere better and increases its cooling action by evaporation of moisture.

For analgesic action on painful, raw surfaces, 5, 10 or 20 per cent of benzocaine, also known as anesthesin, added to boric acid is perhaps the most eligible, should a dusting powder seem indicated.

FUMIGATION

Fumigation, such as that of calomel for syphilitic sores, is essentially nothing more or less than the application of a powder to the skin. The naked patient is placed on a cane-seated chair. He is covered with a blanket which is tightly fastened around his neck. The calomel vapor is generated by a vaporizing apparatus placed beneath the chair. It is well to precede the medicinal vapor by steam until the patient is perspiring.

II. NONABSORBENT FILMS

Some films, such as the paraffin films, are used as artificial substitutes for the natural protector of the body, the epidermis, whenever the latter is deficient; some also, such as the medicated collodions for prolonged application of medicament, and some, the gelatin

5. When used in the nursery, zinc stearate or talcum containers should have a self-closing sprinkling top, as otherwise babes, with their instinctive tendency to put things into their mouths, are liable to aspirate powder into their lungs in sufficient quantity to produce serious injury.

films and plasters, for support, immobilization or prolonged medication. An important difference obtains between the action and use of these nonabsorbent films and absorbent dressings. The latter are used for infected and discharging surfaces, to keep the area dry and thus less suitable for the growth of micro-organisms. Nonabsorbent films must be employed only on clean and relatively dry surfaces.

There is nothing more natural than to supply a deficiency of the natural protective film—the epidermis—by some artificial film; and artificial films, most especially in the form of fat, have been employed for this purpose from time immemorial. Whether we use carron oil, castor oil, petrolatum or paraffin, the mode of action is essentially the same: we supply a pliable film that is nonabsorbent and inhibits drying, which produces distress in fresh raw surfaces and is detrimental to healing. The chief disadvantage of most of these films is that they are liable to permit underneath them accumulation of secretion, which, serving as a culture medium, may cause sepsis. This is the reason why nonabsorbent films should not be used on infected surfaces. Such need moist dressings, the technic of which will be described later. On the other hand, as soon as the infection has cleared up, these films are superior to moist dressings, because the latter drain away not only infective but also reparative material.

The routine addition of antiseptics to films is erroneous for several reasons, chief among which is the fact that all agents inimical to bacterial growth are also more or less detrimental to the growth of cells. Hence, they should not be used on a delicate raw surface, when there is no infection; when there is infection, we have in moist dressings a much more efficient treatment.

The various lipophil films, used as dressings for burns, differ chiefly in their melting point. It is not difficult to understand that, when we employ a fatty body to act as a substitute for the lost epidermis, the first requisite for success is that it must stay on the surface. This is not the case with those fatty substances that are liquid at body temperature, such as castor oil or petrolatum. They are sucked up by the absorbent gauze with which they are usually covered, and the dressing sticks and is hard to remove. To be thoroughly satisfactory, the melting point of the application must be above the temperature of the body surface. This can be secured by mixing petrolatum with paraffin, so as to obtain a cerate-like salve, or by painting on melted paraffin.

PARAFFIN FILMS

The paraffin dressing of burns, about which so much was written during the World War, is on the whole a very simple affair. Here, as has so often been the case with other remedies, the progress has been from the complex to the simple. Introduced under the name "Ambrine" as a secret preparation by Barthe de Sandfort, with what seemed exorbitant claims, it was found that the claims were essentially true, but the composition unnecessarily complex. Thus, P. N. Leech [6] showed it to be composed of 97 per cent of paraffin, the rest being a little fatty oil, an asphalt-like body, coloring matter, etc., all of which have since been found to be unnecessary and some even undesirable. Indeed, Leech finds that a more satisfactory product can be obtained by using paraffin of a melting point at or below 50 C., which is pliable at 28 and ductile at 31. Such paraffins are now readily obtainable under the name of surgical paraffin, which differs from the official paraffin (melting point from 50 to 57 C.) in having a lower melting point. Both Leech and Sollmann [7] have found that the addition of even traces of asphalt to paraffin greatly lowers its surface tension, so that when the melted paraffin is poured on warm water it forms a thin, even film, whereas simple paraffin tends to collect in thick drops. Asphalt also makes the paraffin a little more adherent. For cosmetic reasons, a flesh tint may be given by the addition of a trace of scarlet red or sudan. A little of an aromatic oil, such as oil of eucalyptus, may be added as perfume to cover disagreeable odors that may develop. These additions, however, are not essential for obtaining good results.

Medication with antiseptics or stimulants is useless, as the paraffin protects the chemical against access of solvent. Sollmann [7] immersed in water a film of paraffin containing resorcin. After five days the water contained no trace of resorcin. Paraffin containing 1 per cent phenol (carbolic acid) yielded not more than a faint trace to water.

The claims made for the paraffin dressing were that healing occurred much more rapidly, that there was much less scarring, and that skin grafting was not nearly as often required as after other dressings. Of course, the dressing cannot create new epithelium, and skin grafting becomes necessary when the whole of the epidermis has been destroyed over an area at all extensive. The reasons for the remarkable success of the dressing are partly positive, partly negative. The dressing is bland and nonirritating, and the healing occurs with very little waste of material. The living cells are not likely to be pulled off or otherwise injured, as occurs with adherent dressings; nor are they killed by drying or antiseptics. Among the positive advantages, it must be noted that the paraffin excludes the air, maintains a constant temperature and forms a protective covering. It serves as a scaffolding or support to the new epithelium and acts as a cast, immobilizing the surface. A secretion soon forms which is a culture medium for the proliferating cells, making possibly two cells grow where only one would grow without it. The secretion forming under it within twenty-four hours makes the dressing easy to remove without pain, bleeding or destruction of the newly regenerated epithelium. Another reason for the reputed lessening of scarring may be the preservation of remnants of skin glands, from which epithelial islands may spring and which are destroyed by less physiologic conditions. There must, of course, be no infection; otherwise the fluid accumulating under the dressing furnishes a culture medium for the micro-organisms, and their poisons would do more harm than the dressing would do good.

The chief disadvantage of the paraffin dressing lies in its rather complicated technic. The paraffin must be melted and applied to the surface at just the right temperature. If too hot, it causes pain; if permitted to become too cool, it cannot be applied. The technic of the dressing has, however, been so much improved and simplified that there is no reason why it should not now find general employment.

6. Leech, P. N.: "Ambrine" and Paraffin Films, J. A. M. A. **68**: 1497 (May 19) 1917.

7. Sollmann, Torald: Development in the Paraffin Treatment of Burns and Other Open Wounds, J. A. M. A. **68**: 1799 (June 16) 1917.

The paraffin, shaved or broken into small pieces, is put into a perfectly dry sterilized receptacle, which is well covered to prevent water from splashing into it, and is placed in a larger vessel partly filled with water that is kept boiling until all the paraffin is melted. Should water get into the melted paraffin, it may cause severe pain when the dressing is applied. The difficulty of keeping the paraffin just at the melting point for any length of time may be overcome by using sodium acetate instead of water in the outer vessel, as suggested by Sollmann.[8] This salt has the curious property of melting and congealing at just about the temperature needed for the application of the paraffin, and, while passing from the liquid to the solid state, of retaining this constant temperature for a long time, as long as three hours. Before applying it, the temperature of the melted paraffin is taken or else tested against applying it too hot by dropping a little of it on the back of one's hand.

The burned area is carefully cleansed by aseptic or antiseptic irrigation and removal of loose dead tissue. One should then dry it by laying a piece of sterile gauze over it, gently touching and blotting the gauze by wads of dry gauze or cotton. The surface should never be wiped, and the greatest care should be exercised to avoid bleeding or infection. The use of a hot air douche to expedite drying is convenient but not essential.

To minimize the distress caused from the application of the first coat of melted paraffin to the sensitive raw surface, Sollmann's suggestion first to paint it with liquid petrolatum is worth remembering. Over this a thin film of melted paraffin is laid by a series of gentle pats, rather than by painting it on. Special atomizers, with a hot water jacket for maintaining the proper temperature, have been constructed for the purpose of applying the first coat of paraffin with the least distress. They are, however, liable to be troublesome, and some surgeons well experienced in this method have abandoned the spray. The hot paraffin should be carried half an inch or more over the healthy skin, to which it adheres, completely sealing the wound. Because the skin is more sensitive than a raw surface, patients may complain of pain when the application to the healthy skin is made. However, if the temperature is at or near the melting point of paraffin, there is no danger of a burn. After the first film has been laid on, a second fairly thick layer may be applied by painting it on.

The dressing may now be finished by covering it with a gauze bandage, or else a piece of gauze may be placed over the paraffin and a muslin roller bandage applied. This method is probably superior to the use of thin layers of absorbent cotton placed over the paraffin film and covered with a thick layer of paraffin. In neither case is cotton or gauze applied directly to the raw surface.

At first the dressing needs to be changed once every twenty-four hours; later, it may be left in place for forty-eight hours or longer. In removing the dressing it is best to slit it through with the scissors, being careful of course not to wound the raw surface. Owing to the accumulation of fluid underneath it, the film may then be rolled back without the least pain or danger to the injured part. A fresh dressing is then reapplied in the manner described before. When pus is too profuse or when absorption symptoms occur (fever, redness and swelling), the paraffin treatment is discontinued for a day or two and antiseptic compress treatment applied. In extensive burns, early grafting (usually in about three weeks) is advisable.

The paraffin film may also be useful as an antipruritic. Kissmeyer [9] called attention to the use of paraffin films in dermatology not only for the healing of leg ulcer, but also and most especially in eczema, neurodermatitis, prurigo and roentgen-ray burns. While it did not always secure healing, it never failed to lessen the itching promptly. It has also been recommended in herpes zoster.[10]

COLLODIONS

Collodions are solutions of pyroxylin (soluble gun cotton) in a mixture of ether (3 parts) and alcohol (1 part). When this solution is painted on a surface exposed to the air, the alcohol and ether evaporate, leaving a thin film.

These preparations are intended to furnish a waterproof film, which may be useful to cover small skin defects, provided the surface is sterile and dry. They are irritating, while fluid, on account of the presence of volatile solvent, and simple collodion is unpleasant because it contracts when it dries. There is a flexible collodion (official) made so by the addition of 3 per cent of castor oil and 2 per cent of camphor, which is somewhat better to use than the other kind, unless the contractile effect is desired.

Collodions may also serve for the prolonged application of medicament to the skin. The National Formulary contains a number of examples of medicated collodions, among which may be mentioned the styptic collodion, containing 16 per cent tannic acid, and a corn collodion, under the name compound salicylic collodion, whose action is due to 10 per cent of salicylic acid. The presence in this preparation of 10 per cent of fluidextract of cannabis is irrational, as the fluidextract cannot do any more than merely give a green color to the preparation. Before applying this "corn collodion," one takes a prolonged hot foot bath and scrapes or trims off all the easily removable epidermis. The process is repeated daily until a satisfactory result is secured.

(To be continued)

Medical Treatment of Gastric Ulcer.—I am a great believer in the medical treatment of gastric and duodenal ulcer so long as no hour-glass contraction or pyloric obstruction is present. The danger of failing to recognize that a chronic ulcer is becoming malignant is not great, as the roentgen ray generally settles the question at once. But in the very earliest stages the appearance may still be that of a chronic ulcer. In such cases the immediate result of treatment does not help, as the symptoms disappear as quickly as in an uncomplicated ulcer. The crater of the ulcer also becomes smaller, though it does not disappear completely as it does in nearly all cases of chronic gastric ulcer. But what is of far more importance is that occult blood persists, however long the treatment continues and however well the patient appears to get. If, therefore, at the end of a fortnight's treatment symptoms are still present, or at the end of a month the crater has not either disappeared or become much smaller, or, most important, if occult blood is present in undiminished quantity, an operation should be advised without further delay.—Hurst, A. F.: *Guy's Hosp. Rep.* **75**:403 (Oct.) 1925.

8. Sollmann, Torald: Convenient Devices for Melting Paraffin for Burns, J. A. M. A. **68**: 1895 (June 23) 1917.

9. Kissmeyer, A.: Ugesk. f. Læger, April 7, 1921.

10. Fox, Howard: Relief of Pain in Herpes Zoster by Paraffin, J. A. M. A. **79**: 1979 (Dec. 9) 1922.

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SATURDAY, JANUARY 9, 1926

RESUSCITATION FROM CARBON MONOXIDE POISONING

The frequent occurrence of fatal poisoning with carbon monoxide—the "coal gas" of former days—has become a matter of public concern. The situation[1] is the more deplorable because, unlike the menace of infectious disease or the incidents of increasing age, intoxication with carbon monoxide is a danger that can be and ought to be almost completely eradicated. This becomes the more important when we consider Drinker's assertion that at the present time carbon monoxide poisoning from all sources—fires, automobile exhaust, industrial accidents and manufactured gas—is a more serious medical problem in the United States than is poliomyelitis or smallpox. Accordingly, there is more than passing interest in the report[2] that one of the newest procedures for emergency treatment—the inhalation of oxygen-carbon dioxide—has proved to be highly satisfactory.

The rationale of the method involves the administration of a mixture of 5 per cent of carbon dioxide and 95 per cent of oxygen by a special inhalator, in accordance with the suggestions of Henderson and Haggard of Yale University. It utilizes the stimulating effect of carbon dioxide on breathing, in order to get a high concentration of oxygen into the lungs and thereby to displace the carbon monoxide that deprives the blood pigment of its indispensable oxygen-carrying potency. The evidence collected since the recommendation of the treatment was published by the commission of the American Gas Association in 1923 indicates that the inhalation technic is exceedingly valuable in mild gassing, and in relieving or preventing the occurrence of headache, nausea and attendant symptoms. If in serious cases the patient is still breathing, he may be revived rapidly and thoroughly. Furthermore, it has proved practicable to use the inhalation treatment with prone pressure artificial respiration, when breathing has ceased.

Drinker's report of the absolute unanimity of feeling, whenever the proposed method has been tried, that it represents a decided advance over former practices, taken in consideration with the competence of the investigators, including W. B. Cannon, D. L. Edsall, H. W. Haggard, L. J. Henderson, Yandell Henderson and F. W. Peabody, who were responsible for the proposals, should warrant vigorous extension of facilities for treatment. Combined with this there should be a further campaign of education, particularly among those most likely to be engaged in rescue work. There should be no further "perpetuation of ignorance." Gas poisoning is not like the simplest forms of asphyxia. Vigorous methods of relief must be instituted. Oxygen cannot be given without apparatus. Hence, the commission has advised that all persons who may come in contact with cases of gas poisoning should be trained in artificial respiration, and that they should have inhalation apparatus for use at the earliest possible moment.

1. Resuscitation from Gas Poisoning, editorial, J. A. M. A. **81**: 581 (Aug. 18) 1923; The Health Hazard of the Automobile, ibid. **81**: 932 (Sept. 15) 1923; The Relief of Intracranial Symptoms in Carbon Monoxid Asphyxia, ibid. **82**: 1783 (May 31) 1924.

2. Drinker, C. K.: The Efficiency of the Oxygen-Carbon Dioxide Treatment of Carbon-Monoxide Poisoning, J. Indust. Hyg. **7**: 539 (Dec.) 1925.

DEATHS OF PHYSICIANS IN 1925

During 1925, THE JOURNAL recorded the deaths of 2,483 physicians in the United States, almost the same number recorded in the previous year, which was 2,486. To make a comparison of the two years, the present tabulation will follow closely the editorial of last year. Adding 2 per cent to the total number of deaths reported, on account of delayed reports and possible omissions, we estimate the number of physicians who died during 1925 at 2,532. With a total of 147,010 physicians in the United States as noted in the American Medical Directory, the number of deaths is equivalent to an annual death rate of 17.22 per thousand, which is a slight decrease over last year. The average annual death rate for physicians, as computed by THE JOURNAL for the last twenty-four years, is 17.08.

Ages.—The age at death of 2,448 physicians whose age was stated varied from 25 to 107 years. Twenty-one of the decedents were under 30 years of age; 119 were between 31 and 40; 368 between 41 and 50; 560 between 51 and 60; 665 between 61 and 70; 489 between 71 and 80; 207 between 81 and 90, and eighteen between 91 and 99. There was one death at the age of 107 (THE JOURNAL, Oct. 3, 1925). The largest number of deaths occurred at ages 66 and 67, the number dying at each of those ages being seventy-nine. The largest number of deaths reported at any given age last year was at 65. There were more deaths reported in August than in any other month (243); the smallest number was reported in December (155).

Causes of Deaths.—Among 2,420 deaths for which causes were given, diseases of the circulatory system accounted for 872, the largest number by systems. Of these, heart disease caused 559 deaths, angina pectoris being specified in ninety, myocarditis in eighty-one, acute dilatation in twenty, endocarditis in fourteen and valvular disease in twelve; cerebral hemorrhage was specified as the cause of 233 deaths, and was the second most frequent cause given, as it was last year. Diseases of the respiratory system, exclusive of tuberculosis, accounted for 278 deaths, of which 222 were due to pneumonia, twenty-six to influenza, twelve to asthma, four to pulmonary edema, and two to cancer of the lung. Diseases of the genito-urinary system caused the death of 227 physicians, of which number 161 were due to nephritis, forty-one to uremia, fourteen to diseases of the prostate, and one to hypernephroma. Diseases of the digestive system, exclusive of cancer and diabetes mellitus, accounted for 108 of the deaths reported, of which thirty-three were due to appendicitis, sixteen each to peritonitis and cirrhosis of the liver, nine to gastric ulcer, two to duodenal ulcer, thirteen to cholecystitis or gallstones, ten to acute intestinal obstruction, two to abscess of the liver, two to enteritis, and one each to atrophy of the liver, pancreatitis and colitis. Among the so-called general diseases, cancer accounted for 118 deaths. The organs most frequently cancerous were the stomach, twenty-six; intestine, twelve; pancreas, eight; prostate, seven; throat and adjacent parts, eleven, and the liver and bladder, each six. Tuberculosis under this classification was the second most frequent cause of death given, with fifty-two; then erysipelas, eight; typhoid fever, seven; scarlet fever, two; leukemia, three; diphtheria, alcoholism, pellagra, acute articular rheumatism and purpura hemorrhagica, each one. Diseases of the nervous system caused seventy-three of the deaths reported, of which nineteen were due to some form of paralysis; nine each to brain tumor and meningitis; seven to paresis; six to epidemic encephalitis; five to insanity; two each to multiple sclerosis, hiccup, brain abscess and paralysis agitans, and one each to concussion of the brain, tumor of the spinal cord, and transverse myelitis. The cause was not given in sixty-three deaths reported, and 234 deaths were ascribed to senility, each of the decedents being more than 70 years of age, with no other cause stated. It is obvious that there is much to be learned about causes of deaths among aged physicians, and assistance in ascribing more definite causes will be greatly appreciated from all persons who send reports.

Accidents and Homicides.—There were eighty-three deaths reported due to accidents. The automobile was responsible for forty; falls, fourteen; drowning, seven; firearms, six; burns, four; grade crossings, three; asphyxiation, three; roentgen-ray burns, two; poison, two; the airplane, street car and electric shock, each one. There were three homicides; last year, thirteen.

Suicide.—Fifty-nine physicians ended their lives by suicide: thirty with firearms, five with poison, four with morphine, two with phenol, two by drowning, two by jumping from windows, and one with gas; in thirteen instances the method was not stated.

Positions.—Among the physicians who died in 1925, there were 137 who served in the World War; eighty-two who were Civil War veterans, and twenty-three who were Spanish-American War veterans. There were eighteen who had been members of state legislatures; eighty-three, members of boards of health; fifty-four, members of boards of education; nine, members of boards of medical examiners; eighteen, mayors of cities; twenty-six, coroners; five, postmasters; fifteen, authors; two, editors; ten, bank presidents; four, lawyers; four, dentists; twenty-one, druggists, and one, a missionary.

Association Officers.—One trustee of the American Medical Association died during the year. There were also one who had formerly been on the board of trustees; one former vice president; two former members of the House of Delegates, and nine who were former presidents of state medical associations.

Looking back in THE JOURNAL twenty years, we find that sixty-two physicians died under 30 years of age in 1905, while in 1925 there were only twenty-one; then, there were 103 who died between 70 and 80 years of age, whereas in 1925 there were 489; then, there were 239 who died between 80 and 90 years of age, and in 1925 there were 207 between 81 and 90; then, there were twenty-five who died beyond 90 years of age, and in 1925 there were nineteen; then, there were two who passed the century mark, and last year there was only one.

THE SITE OF FORMATION OF BILE PIGMENT

After the decades during which it was firmly believed that the bile pigments are formed in the liver alone, the proof that bilirubin accumulates progressively in the body when this organ has been excluded came as a contribution of unexpected importance to physiology.[1] The occurrence of jaundice has taken on a new meaning; it has become necessary to modify some of our inherited conceptions regarding hepatic function. There are, for example, types of hemolytic icterus in which the liver does not seem to be concerned. In such instances bile pigments may be present in the blood and urine, unaccompanied by bile salts—so-called dissociated icterus. Hence, the old dictum of the essential implication of the liver in jaundice can no longer be upheld.[2]

1. Origin of the Bile Salts, editorial, J. A. M. A. **83**: 444 (Aug. 9) 1924; The Formation of Bile Pigment, ibid. **85**: 271 (July 25) 1925; Bile Pigment as an Expression of Blood Destruction, ibid. **85**: 358 (Aug. 1) 1925; The Origin of Urobilin, ibid. **85**: 518 (Aug. 15) 1925; Liver Function Tests, ibid. **85**: 1062 (Oct. 3) 1925; The Significance of Urobilinuria, ibid. **85**: 1491 (Nov. 7) 1925.

2. A Review of literature is given by Wells, H. G.: Chemical Pathology, Ed. 5, Philadelphia, W. B. Saunders Company, 1925.

The conception of the extrahepatic formation of bile pigments has received further corroboration in the demonstration by Mann, Bollman and Magath [3] that bilirubin is formed in the body even after the surgical removal of all the intra-abdominal organs, thus conclusively showing that there is an extra-abdominal source of bilirubin and that neither the liver nor any other intra-abdominal organ is necessary for its formation.

Investigators at the Mayo Foundation [4] have gone a step further in attempting to locate specific organs or tissues that may be concerned in pouring the pigment into the circulation. The results of the experiments show conclusively that bilirubin is added to the blood as it traverses the spleen and bone marrow. Bilirubin was not added to the blood while it was passing through any of the other tissues studied, which included practically all the tissues in the body except the liver. The amount of bilirubin detected in these tissues was so small that it was very evident that bilirubin was not being formed in them. Whether or not bilirubin is formed in the liver has not been determined. In any event, the spleen and bone marrow are definitely proved sites of the formation of bilirubin. It has been suspected that bilirubin arises where the reticulo-endothelial cells are abundant. Students of the subject now regard this hypothesis as correct and further believe that the cells of the same type in the liver can also form bilirubin. The cells forming bilirubin, they add, would thus be rather widely distributed, and as a tissue would be located mainly in the spleen, bone marrow and liver, although occurring in other places, such as the lymph nodes. They further regard it as highly probable that this definitely proved, rather wide distribution of the cells capable of forming bilirubin will correlate many of the seeming contradictions and divergent experimental and clinical observations on the formation of bile pigment and jaundice. One thus gains the impression that the bilirubin-forming tissue greatly exceeds that required for the ordinary needs of the body. Probably only a small part of this tissue is active at any one time. As Mann and his co-workers point out, possibly those bilirubin-forming cells located in the spleen, where they had access to a generous blood supply and where their product would pass directly to the liver to be excreted, would respond to a lower threshold of hemoglobin than the same type of cell in any other part of the body. If the foregoing conjectures are true, the investigators conclude, they will explain many uncorrelated facts; for instance, the variations in the effect of splenectomy on changes in the liver, lymph nodes and bone marrow; the variability in the rate of the formation of bilirubin, and the various types of jaundice.

3. Mann, F. C.; Bollman, J. L., and Magath, T. B.: Am. J. Physiol. **69**: 393 (July) 1924.
4. Mann, F. C.; Sheard, C.; Bollman, J. L., and Baldes, E. J.: The Site of the Formation of Bilirubin, Am. J. Physiol. **74**: 497 (Nov.) 1925.

Current Comment

EXTREME REQUIREMENTS IN MEDICAL EDUCATION

The article by Dr. Henry A. Christian in a recent issue of *Science* calls attention to the advantages and likewise the dangers to be considered in the development of highly endowed and equipped medical schools. The author points out clearly that high entrance requirements or extreme limitation of enrolments, while they may result in the securing of a few highly skilled and efficient graduates, may at the same time eliminate many brilliant minds. There are doubtless many students who, under the special advantages furnished, would bring great credit to themselves and to the institution, even though their preliminary education may be only average and who, for that reason, would hardly be admitted under higher entrance requirements or where classes are limited to smaller numbers. Such students who, under exceptional hardships, have been enabled to secure the average preliminary training, but who through that very process have developed tenacity, perseverance, efficient methods, unusually good judgment and other high personal characteristics, should be given every encouragement. The author suggests the possibility, therefore, that a large student body would be more advisable but with special provision whereby those especially gifted could be discovered. "There is much to indicate," he said, "that the small school has not quite measured up to its expectations." The holding of admission requirements more to the average, rather than to the extreme, and the admission of reasonably large classes will not only open the way for the brilliant minds who otherwise would be excluded, but also enable the institutions to utilize their larger resources in the way of endowment, equipment and teaching facilities for larger numbers of highly qualified practitioners. Under careful methods, these larger classes cannot fail also to include larger numbers of exceptionally efficient graduates.

THE ANEMIAS DUE TO RADIOACTIVE SUBSTANCES

The contributions recently appearing in THE JOURNAL [1] on the dangers of radioactive substances are both timely and elucidating. They warn against subtle menaces that represent practically a heretofore unrecognized form of occupational poisoning in which the use of radium, mesothorium and radiothorium plays a part. The timeliness of the scientific study of the untoward experiences of certain workers handling these products lies in the fact that the greater dangers at least can be averted by improved industrial procedures. What this may mean is indicated by the report that it has been possible in the past for employees unwittingly to ingest and absorb greater amounts of radioactive elements than are ever given

1. Hoffman, F. L.: Radium (Mesothorium) Necrosis, J. A. M. A. **85**: 961 (Sept. 26) 1925. Martland, H. S.; Conlon, Philip; and Knef, J. P.: Some Unrecognized Dangers in the Use and Handling of Radioactive Substances, ibid. **85**: 1769 (Dec. 5) 1925.

in expectation of therapeutic results. The local effects of radioactive elements have been recognized for some time. In the case of the persons accustomed to introduce such products into the oral cavities through the objectionable habit of pointing in their mouths the tips of brushes dipped in luminous paints, the lesions are due to irritative radiation. Necrosis of the jaw may result. The harm is accentuated by the increased bacterial virulence of the organisms in the mouth caused by the irritative or stimulative effects of small amounts of radiation. Far more insidious, however, are the scarcely suspected remote effects of radioactive elements once introduced into the body. There is no known way of eliminating, changing or "neutralizing" them while, according to Martland and his co-workers, they form fixed deposits in the main organs of the reticulo-endothelial system, chiefly the spleen, bones, marrow and liver. Here they continuously emit radiations until they decay according to their individual life history. Primarily, in these situations, they act as irritants to the adjacent erythroblastic and leukoblastic centers. The studies have emphasized in unanticipated ways the serious late effects of such radioactivity in the body. As the latest investigators have described the effects on the hematopoietic system, small doses of radioactive elements increase temporarily red and white cell production. After a shorter or longer time, small or larger doses cause partial or almost total destruction of leukocytes and a diminution in the erythrocytes, producing a severe anemia that simulates the pernicious anemias of regenerative and aplastic types. The same symptoms have long been attributed to a variety of pathogenic agencies. In view of the significant fact that it is possible by means of a sensitive electroscope to detect radioactivity in the expired air of persons harboring active deposits, a method of distinctive diagnosis is now at hand. The demonstrated cell-destructive potency of radioactive substances and the unsuspected late effects that they may initiate should serve as a vigorous warning to all who promote radioactivity as a therapeutic measure. In no field is conservatism more emphatically demanded until our knowledge has been enriched by dependable information.

NEW WORK ON PYORRHEA

A new effort to establish a specific causative organism for pyorrhea and to investigate its remote effects has just been made public.[1] In the selection of material for study, only such patients were chosen by the author as gave evidence of some condition apparently secondary to the pyorrhea. Of the various organisms that have been incriminated as causative agents—streptococci, staphylococci, pneumococci, *Micrococcus catarrhalis*, *B. fusiformis*, certain spirochetes and *Endameba gingivalis*—the investigation was again limited to streptococci, as being the most likely of the group to be the cause of secondary disease. For practical purposes, the investigator accepted the classification of streptococci promulgated by Holman, who divided all organisms of this class into two large groups, hemolytic and nonhemolytic, with a subdivision of each of these groups into eight subclasses based on their action on certain differential sugars. Adequate care was taken to prevent contamination of the cultures by mouth organisms. Pneumococci were excluded, and in every case a pure culture of streptococci was obtained. The results showed that "(1) streptococci are constantly present; (2) they belong to the nonhemolytic group, and (3) they include different fermentative types; e. g., mitis, salivarius and fecalis." Virulence of the organisms found was low. In the organs of experimental animals injected with isolated organisms, the following secondary pathologic changes were found: in the heart, endocarditis; in the kidney, interstitial nephritis and abscesses; in the bones, slight osteolysis and some evidence of aplasia in the marrow; in the spleen, granules in the cells and large amounts of hemosiderin; in the stomach in one instance, ulcers, and in the aorta, atheroma. Extremely interesting, however, is the fact that arthritis was not found in those animals inoculated with the usual nonhemolytic strains.

1. Thompson, Muriel J.: An Experimental Study of the Streptococci Found in Pyorrhoea Alveolaris, Edinburgh M. J. 32:781 (Dec.) 1925.

CONFESSIONS IN THE DIPLOMA MILL SCANDAL

Since the publication of the Missouri diploma mill exposé about two years ago, William P. Sachs and Robert Adcox, two members of the ring, have turned state's evidence and issued confessions. The aplomb with which each told his story, and the evident tendency toward exaggeration, suggest an exalted ego. Their statements, unless supported by the evidence which probably forced the confessions, are perhaps as unreliable as the credentials they were selling. Sachs has claimed that many thousands of spurious diplomas were issued in the United States. Evidently he refers to credentials rather than medical diplomas. Had there been so many medical diplomas, the American Medical Association would certainly have known of it owing to the close record kept of the licensing of physicians. In the "confession" of Robert Adcox, those named were persons regarding whom evidence to prove their connection with the selling of spurious diplomas was already available in abundance. But there his effective testimony ceased. He continued, nevertheless, to cast innuendo and suspicion on unnamed members of unnamed state licensing boards, as accomplices in the diploma traffic. He should be required to name the persons thus defamed, so that the house-cleaning can be more complete; otherwise his testimony is of little or no value. Meanwhile, the testimony offered by Adcox and Sachs should not be considered sufficient to warrant their exemption from the penalty of their misdeeds. The revocation of the charters of two legally chartered diploma mills will be of no value if the conspirators themselves are allowed to go free. The way to discourage spurious diploma traffic is to require those engaged in it to serve a penitentiary sentence. This method proved effective with "Dr. J. Armstrong, et al.," who conducted a series of diploma mills during the latter

1890's. A sentence of fifteen months in the federal penitentiary likewise discouraged J. W. Decker of Texas, of Gate City Medical College fame, from further continuing the business. Similar action would be more effective also in the present instances.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ALABAMA

Chiropractor Jailed.—The supreme court having affirmed the sentence imposed last May, James A. Robinson, a chiropractor of Selma, was placed in the county jail, Dec. 5, 1925, it is reported; fines of more than $500 had been assessed against Robinson by the court.

CALIFORNIA

Society News.—Dr. Francis M. Pottenger addressed the annual meeting of the Los Angeles County Medical Society, Los Angeles, Dec 17, 1925, on "The Curability of Tuberculosis," illustrated by lantern slides.

Abrams Estate Sued.—It is reported that the United States is suing the estate of the late Dr. Albert Abrams, founder of the notorious "electronic reactions of Abrams," for $500,000 alleged to be due the country because of income tax evasions from 1920 to 1924.

Dr. Dewey Honored.—The eightieth birthday of Dr. Richard S. Dewey, Pasadena, was celebrated, Dec. 6, 1925, by members of Sigma Phi Fraternity living in Southern California. Dr. Dewey was for many years medical director of the Milwaukee Sanatorium, at Wauwatosa, Wis., and previous to that was in charge of the Illinois State Hospital at Kankakee for many years.

Physicians Fined.—Dr. William A. Strole, Los Angeles, it is reported, pleaded guilty, recently, in the United States District Court, Southern California, to a charge of violation of the Harrison Narcotic Act and was sentenced to pay a fine of $500. Dr. Frederick K. Lord, Ceres, who was arrested recently on charges of driving and operating a motor vehicle on the public highway while under the influence of liquor, it is reported, pleaded guilty and was sentenced to pay a fine of $200 and in default thereof be imprisoned in the county jail one day for each $2 of the fine.

Contagious Disease Declines.—California, according to the state health officer, enjoyed better health during 1925 than at any other time in the last six years. Although there has been a "tremendous" growth of population during these years, he said that fewer cases of diphtheria, scarlet fever and typhoid were reported this year than in any one of the previous five years. There were 1,135 cases of typhoid fever in the state in 1920 and 793 in 1925 up to December 1; however, there were 1,777 cases in 1924; 5,793 cases of diphtheria were reported in 1920, and 5,034 in 1925 up to December 1, but in 1924 there were 11,110 cases. Scarlet fever in 1925, it is said, decreased about 50 per cent over the preceding year; however, there were fewer cases in 1920 (4,117) than there were in 1925 up to December 1. Immunization against diphtheria undertaken by health departments has contributed to the decline in the number of cases of diphtheria; the other records of decrease show that local health departments are making use of modern methods of preventive medicine. The state, the cities and counties, the commissioner says, are making liberal expenditures for the protection of public health.

Stanford University Medical School.—The dean of Stanford University Medical School writes that the next Lane medical lecturer will be Dr. R. Magnus, professor of pharmacology, University of Utrecht, Holland, who will probably deliver his lectures in December, 1927. The recent Lane lectures delivered by Prof. Vittorio Putti were presented in admirable manner, the dean says, and aroused great interest among the physicians who attended.——Dr. Emile F. Holman, who was appointed associate professor of surgery last year, entered on his duties at this school, Dec. 1, 1925.——The teaching in public health and preventive medicines has been completely reorganized, and Dr. Ernest C. Dickson, professor of medicine, placed in charge as acting executive.——The medical faculty decided last year to increase the number of students to be admitted to the medical school to fifty in each class, and the registration this year is freshmen, 46; sophomores, 50; juniors, 35; seniors, 28; student interns, 27; total 186. The university has received a donation of $4,000 from Roy M. Bishop, San Francisco, to support research on diseases of the kidneys, which is being done by Dr. Thomas Addis, and a donation of $5,000 from Mrs. Dorothy Fries Lilienthal to establish a scholarship in memory of her mother, to be known as the Florence Hecht Fries Scholarship in Medicine.

CONNECTICUT

Well Child Conference.—The state department of health established a Well Child Conference at Southington, recently. There are now forty-three similar conferences held monthly in the state. The health center building proved inadequate for the occasion and three additional rooms were placed at the disposal of the conference. With the assistance of local physicians, 110 preschool children were examined.

DISTRICT OF COLUMBIA

Venereal Disease Remedies.—The legislative committee of the Retail Druggists Association of the District of Columbia, after a careful review of the local situation, concluded that it is illegal in view of the recent law to sell over the counter proprietary preparations that are obviously intended as remedies for venereal disease. The committee found that most of the drug stores in the District years ago discontinued selling this type of remedy. The committee further recommended that drugs and combinations in capsule form or otherwise, which are intended for dispensing on physician's prescriptions, be dispensed only in that manner.

"Bishop" Holler of "Oriental University" Found Guilty.—Helmuth P. Holler, president of the "Oriental University," and self-styled "Bishop" of the Theomonistic Church, was found guilty, Dec. 22, 1925, on a "diploma mill" indictment, by a jury in the Criminal Court of the District of Columbia. He was convicted of the charge of conspiracy to use the mails to defraud. The conspiracy consisted of the sale or issuance of degrees and diplomas to students of the university under false pretenses; that is, a student could obtain a degree as master of surgery, dentistry, medicine or any other science without studying or having actual laboratory or demonstration work pertaining to the subject under study. The investigation into the workings of the university began after several fatalities had occurred among the patients of the "postage stamp" doctors who were "graduated" from the university and held degrees which stated that they were competent to practice medicine or surgery. The university pretended to teach many arts and sciences; it even "ordained" ministers of the Theomonistic Church. According to the arguments of Lee A. Rover and M. Pearl McCall, assistant district attorneys, the university, founded on "lies, deceit and dishonesty," flooded the United States and many other countries with worthless diplomas which were issued for a price, regardless of whether or not the person receiving the diploma had ever put in as much as an hour of study. Holler now faces a penalty of two years in prison and he can be fined $1,000. Dr. Robert Adcox and Sam Kaplan, St. Louis, codefendants with Holler, pleaded guilty some time ago and are out on bond. They testified for the prosecution. Dr. Ralph A. Voigt of Kansas City, also a codefendant, was found not guilty. He was tried with Holler. The case has been on trial for two weeks. The jury deliberated less than an hour.

ILLINOIS

Chiropractor Fined.—A. E. Lill, a chiropractor of Belleville, was fined $100 and costs, Dec. 2, 1925, it is reported, on a charge of practicing without a license.

Personal.—Dr. George R. Seward, Peoria, has been elected county physician.——The home and furnishings of Dr. John H. Donovan of Windsor were destroyed by fire, Dec. 26, 1925.——Dr. John W. H. Pollard, former health officer of Quincy, has been appointed health superintendent for the eleventh district of Illinois, comprising Adams, Hancock, McDonough, Schuyler, Brown, Pike and Calhoun counties, with headquarters in Quincy.

Safe Oysters.—There is a list of 178 shippers of oysters who have been certified by the U. S. Public Health Service and

by the state health departments in their respective states to show that oysters from these sources are produced in beds free from pollution, and that they are handled and shipped under sanitary conditions. The list will be added to from time to time as other shippers meet the sanitary requirements; in the meantime, the state health officer recommends that oysters be purchased from shippers named on the list given in *Illinois Health News* (December, 1925).

The Pneumonia Problem.—The mortality from pneumonia in Illinois has been less than 6,000 in only five years since 1902; one of these years was 1905, when 5,877 deaths were due to pneumonia; another was 1919, the year after the influenza pandemic, when only 3,800 in the state died of pneumonia, and another was last year, when 5,867 persons died of pneumonia. The greatest annual mortality from pneumonia occurred in 1918, when the death list was 10,957. The state health officer considers that pneumonia can be prevented, and devotes the December, 1925, number of *Illinois Health News* largely to information concerning this subject.

Chicago

Society News.—Dr. Winford P. Larson, Minneapolis, addressed the Chicago Society of Internal Medicine, Dec. 21, 1925, on "Immunization Against Diphtheria and Scarlet Fever with Toxin Detoxified with Sodium Ricinoleate"; Dr. Ruth Tunnicliff, on "A Diplococcus in Measles," and Elson M. Fisher, on "Effect of Roentgen Rays on the Pancreas."——Dr. Robert B. Preble addressed the Chicago Medical Society, January 6, on "Thirty-Five Years' Experience with Pneumococcus Pneumonia," and Dr. Charles S. Williamson, on "Management of the Simple Anemias in General Practice."

Iroquois Memorial Hospital.—An average of about 9,000 treatments a year are given in the Iroquois Memorial Emergency Hospital, chiefly accidents and emergency cases, happening in the downtown section. A memorial meeting was held, Dec. 30, 1925, at the hospital, 23 North Market Street; twenty-two years ago, the Iroquois Theater disaster occurred. This hospital, provided by friends and relatives of those victims, is operated by the Chicago Department of Health, in cooperation with an advisory committee from the Iroquois Memorial Association. The facilities of the hospital are used also to examine suspected typhoid fever carriers and for clinics. It is never closed.

Personal.—Dr. Isaac A. Abt has been appointed attending physician in diseases of children at St. Luke's Hospital.——Edwin O. Jordan, Sc.D., professor of bacteriology, University of Chicago, will give a lecture in Orchestra Hall, January 11, under the auspices of the president and trustees of the university, on "The Conquest of Disease."——Dr. Irving S. Cutter, dean of Northwestern University School of Medicine, Chicago, addressed the annual meeting of the Kalamazoo Academy of Medicine, Dec. 15, 1925.——Dr. Carl Beck sailed, January 5, for Europe to invite certain scientists and physicians to the next meeting of the Inter-State Post-Graduate Assembly of North America, and to arrange for the next Post-Graduate Clinic tour to Europe.

Dr. Bridge's Will.—About $6,000,000 will ultimately be given to charitable and educational institutions under the will of the late Dr. Norman Bridge, an inventory of which was filed in probate court, January 4. The estate, on the death of the widow, is to be divided equally between the University of Chicago for medical education, the University of Southern California Medical Department, the Barlow Sanatorium Association of Los Angeles, the Southwest Museum Incorporated, Los Angeles, and La Vina, a sanatorium in Pasadena; each of the five institutions, it is reported, will receive about $1,200,000. There were ten $10,000 bequests also, among others to Northwestern University, University of California and the Chicago Home for Incurables. Before his death (THE JOURNAL, Jan. 17, 1925), Dr. Bridge had given more than $1,000,000 to various institutions.

Dean Eycleshymer Is Dead.—Dr. Albert C. Eycleshymer, dean of the University of Illinois School of Medicine, was shot and killed accidentally at his home in Oak Park, Dec. 30, 1925. Dr. Eycleshymer, who for some time had been in ill health, was at the time of his death on a year's leave of absence from the university. He was formerly connected with the anatomy departments of the University of Chicago and St. Louis University, and since 1913, had been professor and head of the department of anatomy of the University of Illinois, and, since 1917, dean of the medical school. Dr. Eycleshymer was a member of the National Board of Medical Examiners, the author of publications on anatomy, and winner of the grand prize at the Louisiana Purchase Exposition in 1904 for work on embryology; he graduated from the University of Michigan in 1891; he received a Ph.D. from the University of Chicago in 1895, and an honorary M.D. from St. Louis University in 1911.

INDIANA

Report of Committee on Medical Education.—The committee on medical education of the Indiana State Medical Association investigated the condition of medical service in rural districts in Indiana. It was found in summarizing the replies to the questionnaire that there are 25 per cent fewer physicians in medical societies which reported than there were twenty-five years ago; in the opinion of the forty secretaries reporting, one physician today can give the service it took two and two-thirds physicians to give twenty-five years ago. No towns now receive poorer service than in the earlier days. The report shows also that twenty out of forty counties have county hospitals, and that five counties have private hospitals. There is nothing to indicate an alarming lack of medical service in rural Indiana, according to this report.

IOWA

Personal.—Dr. Charles L. Hawk, who has practiced medicine in Alaska for a number of years, has joined the staff of the University Hospital at Iowa City under Dr. Arthur Steindler of the orthopedic department.

Dr. Wallace Deputy State Health Officer.—Dr. James Wallace of the International Health Board, and former director of the bureau of epidemiology of the state board of health of Utah, has accepted the appointment as deputy state health commissioner of Iowa. During his service in Utah, Dr. Wallace conducted a goiter survey of about 110,000 school children, which is being followed by campaigns of goiter prevention in Utah.

KENTUCKY

Ephraim McDowell's Home.—At the recent meeting of the Southern Surgical Association in Louisville, a resolution was adopted endorsing the project of purchasing the home in Kentucky of Dr. Ephraim McDowell, "father of ovariotomy," as a monument to his memory.

LOUISIANA

Society News.—Dr. Maurice J. Gelpi has been elected president of the Orleans Parish Medical Society. Drs. James Birney Guthrie, Marcy J. Lyons and Euclid J. Richard, vice presidents; Dr. Henry Theodore Simon, secretary, and Dr. John A. Lanford, treasurer. The new officers will be installed, January 11.

Board of Examiners Meeting.—The state board of medical examiners met in New Orleans, Dec. 10-12, 1925, and decided to grant reciprocity to four applicants from the state board of medical examiners of Texas. At this meeting eighteen physicians, sixteen midwives and five applicants for reciprocity appeared before the board. A representative of the National Board of Medical Examiners conferred with the Louisiana board at this meeting.

Personal.—Dr. William J. Mayo, Rochester, Minn., recently addressed the students of Tulane Medical School in the Miles amphitheater at Charity Hospital, New Orleans.——Dr. William Scheppegrell, New Orleans, has been reelected president of the Louisiana Parks Association.——Dr. Lucy S. Hill has been made an assistant in the maternity and infancy bureau of child hygiene of the state board of health.——Dr. Frank H. Walke, Shreveport, was recently elected president of the American Railway Surgeons Association.——Dr. Aldo Castellani arrived in New Orleans from London, January 3, to take up his work as professor and head of the department of tropical diseases at Tulane University of Louisiana School of Medicine.

MARYLAND

War on "Medicine Men."—The state health authorities are preparing to open war on quack doctors and "medicine men," according to Robert L. Swain, deputy commissioner of food and drugs. The Bureau of Food and Drugs for months has been studying conditions surrounding the manufacture of certain proprietary medicines, for the most part in the negro sections of the city. The negro has a special aptitude for building up the mystery and superstition with which his medicines usually are surrounded. There are many of these so-called manufacturers, and in nearly all cases investigation shows that the state pure food and drug law is being violated. Cases have been reported to the department of many persons

having been made ill. The bureau of food and drugs has presented cases to the state's attorney's office, and in one instance a six months' jail sentence has been imposed by the court.

MICHIGAN

Gift for Hospital.—The Niles Hospital Association announced, Dec. 24, 1925, that Mr. and Mrs. F. J. Plym have given $100,000 to purchase and to remodel the "Dresden property" in that city for a hospital. The hospital association is planning now to conduct a campaign to provide additional funds to furnish and equip the hospital; there is already a fund of more than $9,000.

Society News.—Dr. Francis C. Wood, head of the Crocker Cancer Research Institute, Columbia University, New York, will address the Wayne County Medical Society, Detroit, January 22, and give a clinic at the Harper Hospital in the morning.——Dr. W. McKim Marriott, dean and professor of pediatrics, Washington University School of Medicine, St. Louis, will address the Wayne County Medical Society, Detroit, January 11, on "Observations Concerning the Nature and Treatment of Certain Forms of Nephritis."

Personal.—Dr. Leonard W. Brown, for the last six years medical examiner for the Pennsylvania Railroad in Grand Rapids, has been transferred to Fort Wayne, Ind., and is succeeded by Dr. Charles A. Leisher, who comes from Fort Wayne.——Dr. Rush McNair has been elected head of the Kalamazoo Academy of Medicine, to succeed Dr. S. Rudolph Light.——Dr. Harold L. Morris, Detroit, has been elected president of the North Central Branch of the American Urological Association.——Dr. Clayton A. Bullard has been appointed health officer of Royal Oak township.

MINNESOTA

Scholarship in Surgery.—With a legacy left to Drs. William J. and Charles H. Mayo by the late Dr. James W. White, former professor of surgery at the University of Pennsylvania, the board of governors of the Mayo Clinic, Rochester, has established the J. William White scholarship; it will be awarded by the trustees of the Mayo Properties Association to the graduate (either M.S. or Ph.D. in surgery) who, in the opinion of the Medical Graduate Committee, is most deserving of an opportunity for study in surgical clinics in foreign countries.

MISSOURI

Personal.—Dr. James Stewart, state commissioner of health, addressed the Chamber of Commerce, Independence, Dec. 10, 1925, on "Public Health—the State's Obligation to the Community."

Dr. Horton's Indictment Dismissed.—Judge Southren in the Kansas City District Court, Dec. 12, 1925, sustained a motion to quash the indictment against Dr. Ray B. Horton of Purdy, who was charged with third degree forgery in connection with his alleged efforts to obtain medical licenses; Dr. Horton was said to have forged a fictitious name—that of a high school official in Independence, Mo.—to affidavits of credits from that school.

Druggist Not Liable for Prescription Abuse.—According to the *Evening Star*, Washington, D. C., the case of Charles B. Eckart, St. Louis, was set aside by the circuit court of appeals for the eighth district on writ of errors and will not be appealed to the U. S. Supreme Court by the government. Eckart, it is said, was convicted in the lower court on charges of filling prescriptions which he was alleged to know to have been issued by a physician for the purpose of catering to drug addicts. The circuit court pointed out that there was no evidence at the trial of any understanding or agreement between the doctor and the druggist, and that there was no duty resting on the latter to make an investigation. The court held that a prescription issued by a registered physician was a protection to the druggist in filling it, and the judgment of the lower court was reversed in a unanimous opinion.

Society News.—Dr. Robert H. Davis has been elected president of the St. Louis Dermatological Society; Dr. Theodore Greiner, vice president, and Dr. Norman N. Tobias, secretary-treasurer.——Dr. John H. Gibbon, president, American Surgical Association, will give the Hodgen Lecture in the auditorium of the St. Louis Medical Society, January 20, on "Mobilization in the Treatment of Fractures."——The retiring president, Dr. Fred W. Bailey, and the incoming president, Dr. Amand N. Ravold, addressed the St. Louis Medical Society, January 5, at the annual meeting and installation of officers, the last inaugural meeting to be held in the old auditorium. There was a lantern slide demonstration of the new library building and of the proposed auditorium by the architect; an outline of the progress made by the building committee, and the president's reception.

NEW JERSEY

The Rabies Situation.—During the last three years, nine persons in New Jersey have died of rabies; three of them did not receive the Pasteur treatment; in two of the other six, the treatment was begun five days after the persons were bitten, and in the other four cases within forty-eight hours. A total of 526 persons in New Jersey were given the Pasteur treatment in 1923, 1924 and up to Nov. 1, 1925, at public expense. This is only a part of the total number of persons who have been bitten by dogs and who have been treated by practicing physicians. There is no evidence, says the state health department, of any appreciable decrease in the incidence of rabies.

NEW YORK

Hospital News.—The Nassau Hospital, Mineola, recently opened a new wing having a capacity of thirty-six private beds—thirty beds for children and three operating rooms.

Revision of Milk Code.—The state department of health has appointed a committee, which will study the present milk code with a view to presenting to the Public Health Council recommendations regarding the revision of the code. The committee held its first meeting, Dec. 2, 1925; before making a report, it will study other state and municipal milk codes, and the results obtained in various communities, and will confer with officials, dairymen and others. The council will then attempt to formulate a code which will be acceptable to milk producers, and also afford a maximum protection to public health. It is not anticipated that the final revision will involve radical changes from the present code.

New York City

Dr. Bluestone Goes to Palestine.—Dr. Ephraim M. Bluestone, for five years an assistant director of Mount Sinai Hospital, has been appointed director of the Hadassah Medical Organization, which controls most of the medical activities in the Holy Land, and will sail for Palestine the first week in March.

Dr. Harris Appointed Health Commissioner.—Mayor Walker has appointed Dr. Louis I. Harris health commissioner of the city of New York. Dr. Harris, who, under the previous administration, was head of the bureau of preventive diseases, has been in the service of the health department since 1907; he is a lecturer on hygiene at Bellevue Hospital Medical College, chairman of the section on Public Health Administration of the American Public Health Association, a trustee of the United Hebrew Charities, and president of the Association of Tuberculosis Clinics of New York City.

Personal.—Dr. Edward L. Keyes recently addressed the Indianapolis Medical Society, Indianapolis, on "Renal and Ureteral Stones."——Dr. William K. Jacobs has been reelected for three years a member of the board of trustees of the Brooklyn Hebrew Orphan Asylum Society.——Dr. Adolph Stern is now president of the Yorkville Medical Society.——Dr. Joseph Francis Ward has been elected president of the South Brooklyn Board of Trade.——Dr. Seymour Basch has been appointed professor of clinical gastro-enterology at the New York Polyclinic Hospital.——Dr. Anna Hubert has been elected president of the Woman's Medical Association of New York City for 1926.

Lowest Birth Rate on Record.—The birth rate for 1925 in New York City was the lowest on record, according to a report made to the retiring health commissioner by the registrar of records, Dec. 31, 1925. The total number of births recorded during the year was 128,790, which was 1,646 less than the number of births the previous year. The death rate, 11.49 per thousand population, was also the lowest on record with the exception of the year 1921, when it was 11.08. The total number of deaths during the year was 71,863. The outstanding feature of the mortality of 1925, according to the report, was the decrease in the number of deaths from contagious diseases of childhood, and a pronounced decrease in the number of deaths from tuberculosis, there having been 118 fewer than in 1924. Notice was made in the report of the effect of the intense heat in the two weeks ending June 20, 1925, by reason of which from sunstroke alone, the number of deaths was increased by 338.

Society News.—Dr. Béla Schick, head of the children's department, Mount Sinai Hospital, New York, addressed the Utica Academy of Medicine, Nov. 19, 1925, on "Tuberculosis

in Children."——Dr. Walter C. A. Steffen of Flushing addressed the Long Island City Medical Society, Dec. 10, 1925, on "Diagnosis and Treatment of Persistent Thymus in Children," and Dr. Denis E. McMahon, Elmhurst, on "The New Medical Practice Act." The society decided at this meeting to publish a year book containing the names of the members of the various committees and transactions of the society, and any other material which the officers deem necessary to publish.——Dr. Trigant Burrow, Baltimore, delivered the presidential address at the midyear meeting of the American Psychoanalytic Association, Dec. 27, 1925, at the Cornell Club, on "Social Evasion." Dr. Clarence P. Oberndorf, New York, spoke on "The Berlin Psychoanalytic Clinic," and Dr. Cornelius C. Wholey, Pittsburgh, gave a moving picture demonstration of "Transition States in a Case of Multiple Personality."——The Bronx Gynecological and Obstetrical Society has elected Dr. Hyman J. Epstein president for 1926.——Dr. Smith E. Jelliffe addressed a joint annual meeting of the Newburgh and Poughkeepsie Medical Societies recently on "Psychanalysis and Organic Disease."

NORTH CAROLINA

License Conditionally Restored.—At the Nov. 12, 1925, meeting of the state board of medical examiners, in Raleigh, the license of Dr. Ira J. Stoner, Durham, was conditionally restored until the next meeting of the board in June, at which time Dr. Stoner will appear before the board with regard to his alleged violation of the Harrison Narcotic Law.

Society News.—The McDowell County Medical Society met at the home of Dr. Donald M. McIntosh, Old Fort, Nov. 24, 1925, when the subject under discussion was "Tularemia."—— The Durham-Orange County Medical Society is supervising plans for the erection of a seven story building in Durham for physicians.——The Seaboard Medical Association will hold its next annual session at New Berne, in December of this year, under the presidency of Dr. George A. Caton.

Hospital News.—A license has been issued to the Cumberland County Preventorium by the state board of charities. This is a home near Fayetteville which cares for undernourished children and is maintained by various philanthropic lay organizations and the Red Cross.——The Memorial Hospital at Kinston was opened, Nov. 6, 1925; it is a four-story building costing more than $50,000.00, and a memorial to soldiers of the World War.——An anonymous donor has given $20,000 to purchase 300 acres of land for a new location for the Memorial Orphanage for Negroes near Winston-Salem.——An election to vote on a bond issue of $100,000 to establish a county hospital will be held soon in Cabarrus County.

Annual Banquet.—The Buncombe County Medical Society held its annual banquet at the Battery Park Hotel, Asheville, Dec. 21, 1925; out of town guests present were Dr. L. Lieberman, New York; Dr. Joseph Howell Way, Waynesville; Dr. E. McQueen Salley, Saluda, and Drs. Paul H. Ringer, Carlton B. Mott, D.D.S., and Thomas R. Huffines of the dental profession. Dr. Lieberman gave the principal address on "The Renaissance of Clinical Medicine as Contrasted with Laboratory Medicine." He stressed the importance also of establishing in Asheville a great diagnostic clinic. Officers were elected as follows: president, Dr. Franklin Webb Griffith; vice president, Dr. John W. Huston; secretary-treasurer, Dr. Matthew S. Broun. The retiring president, Dr. Charles C. Orr, Asheville, was presented with a special diploma of the society as having established an attendance record of 100 per cent attendance during his year's service.

OHIO

"Free Medicine" Banned.—The board of health of Portsmouth issued an order recently prohibiting the promiscuous distribution of samples of medicine in automobiles, yards and on porches where children might find them.

Bonds for Hospitals.—The three proposed bond issues to provide funds for tuberculosis hospitals were approved at the November election; they were $735,000 for a new county sanatorium for Stark County; $626,000 for an addition to the children's ward of the Cleveland Sanatorium, and $150,000 for a new county sanatorium in Trumbull County. These new institutions will provide about 250 additional beds.

Goiter Survey Completed.—Dr. Oliver P. Kimball of the Ohio State Department of Health, who completed a goiter survey of Marion, Butler and Washington counties, addressed a public meeting at Middleton, recently, on "The Goiter Situation in That Section." According to the *News Signal*, Dr. Kimball found in an examination of 20,278 school children that 26.5 per cent of boys and 39.2 per cent of the girls had enlarged thyroid glands. The lowest percentage was found in Butler County, where 22 per cent. of boys and 40 per cent. of girls had enlarged thyroids; the percentages in Washington County covering 4,227 children were 28.4 for boys and 39.2 for girls, and in Marion County 28.5 for boys and 37.8 for girls. The survey was made by the state department of health to determine whether the situation would warrant the use of preventive measures.

Health Education by Motor Truck.—The bureau of health education, state department of health, offered the services of its "covered wagon" to county health commissioners after the "fair" season closed, with the result that a schedule of health exhibitions covering several months has been arranged. Illustrated talks are given on subjects of particular interest to the community addressed; motion picture films are exhibited and literature is distributed. The equipment comprises a three-quarter ton truck, thirty-eight reels of film covering twenty-six health subjects, two projectors and an automatic power plant for the exhibition of moving pictures, a physician, and an assistant who is film operator and mechanician. This outfit has covered more than 3,500 miles over state roads. Besides this service, the department conducts a film exhibition exchange from which a health commissioner can borrow films free of charge to be shown in his district.

Personal.—Dr. Martin H. Fischer, Eichberg professor of physiology and head of the department, University of Cincinnati College of Medicine, lectured at the Mayo Foundation, Rochester, Minn., Dec. 7, 1925, on "Colloid Chemistry in Biology and Medicine."——Dr. William K. Ruble, district health commissioner in Clinton County, has been reelected for another term, and Dr. Oliver R. Eylar, Waverly, has been reelected district health commissioner for Pike County.—— Dr. Rosco G. Leland, resigned, effective January 1, as chief of the division of hygiene of the state department of health. Dr. Leland goes to Toledo as secretary of the Toledo Public Health Association to succeed Dr. Harry E. Kleinschmidt, who resigned some months ago to accept a position with the state department of health.——Dr. Jackson A. Frank, for several years chief of the bureau of tuberculosis, has been appointed chief of the division of hygiene.——Dr. William A. Quinn has been appointed a member of the board of health of Portsmouth.

OREGON

Portland Academy of Medicine.—The annual meeting of the academy will be held, January 13-15; the annual lectures will be delivered by Dr. George Dick, Chicago, on "Scarlet Fever," and the Joyce Lectures in Surgery by Dr. Edward S. Judd, Rochester, Minn., on "Cholecystitis"; both of whom will also conduct clinics. There will be a dinner in honor of the guests, January 14, at the Portland Hotel, at 6 o'clock.

PENNSYLVANIA

Diphtheria Immunization at Wilkes-Barre.—A total of 6,621 children had been immunized up to Nov. 17, 1925, in the antidiphtheria campaign being conducted in Wilkes-Barre and vicinity; that is said to be more than double the number of children who were immunized in the campaign undertaken two years ago.

Fewer Industrial Accidents.—There were 176,392 industrial accidents in the state during 1925, 2,022 of which were fatal, and 177,539 industrial accidents in 1924, of which 2,209 were fatal. The New Year marks the close of the first decade of the workman's compensation law in the state, and since Jan. 1, 1916, there has been a total of 1,836,681 accidents reported, with 24,699 of them fatal. Last year, compensation payments totaling $12,748,266 were authorized, and since Jan. 1, 1916, a total of $108,690,486 has been authorized by the bureau.

Annual Meeting of Tuberculosis Society.—The Pennsylvania Tuberculosis Society will hold its annual meeting at the Bellevue-Stratford Hotel, Philadelphia, January 19-20. The first day will be given over largely to considering the early establishment of eleven county tuberculosis hospitals which have been authorized by vote of the citizens. Dr. Charles H. Miner, state health commissioner, Dr. Wilmer Krusen, health commissioner of Philadelphia, Dr. Anthony J. Lanza of the National Health Council, Dr. Robert M. Lukens, Dr. Charles J. Hatfield, director of the Henry Phipps Institute, Prof. Charles Edward A. Winslow, Dr.P.H., president, American Public Health Association, among others, will speak. The clinicial program will be held at the Jefferson Hospital Chest Department and at the Henry Phipps Institute.

Philadelphia

Society News.—Dr. Moses Behrend has been elected president of the Philadelphia County Medical Society; Dr. Frederick S. Baldi, vice president; Dr. Henry G. Munson, secretary, and Dr. Edward A. Shumway, treasurer.

Gift to University.—The provost of the University of Pennsylvania announced, January 1, a gift of $250,000 from Mr. Martin Maloney as the nucleus of a fund for the construction within three years of a $750,000 building for the University of Pennsylvania Hospital. The new building will be called the Martin Maloney Memorial Clinic, and this gift is the largest received so far from an individual in the fifteen year campaign for $45,650,000.

UTAH

School for Reserve Officers.—A school for medical reserve officers is being conducted in Salt Lake City under the direction of Dr. Samuel C. Gurney, of the One Hundred and Fourth Division; about one hundred officers are eligible for the course, including fifty-six physicians, twenty-four dentists and twelve medical administrators and two sanitary engineers. The classes will meet on the second and fourth Wednesdays of each month during the winter.

Dr. Kirkwood Appointed State Epidemiologist.—Dr. Robert C. Kirkwood, formerly of Livingston, Mont., has taken up his duties as director of the bureau of epidemiology of the state board of health, succeeding Dr. James Wallace. Dr. Kirkwood served in the army medical corps during the World War at Fort Bayard, N. M., and, following the war, served in the Philippine Islands; previous to that time, he was with the U. S. Public Health Service at Fort Stanton, N. M.; a dinner in his honor was given, Dec. 17, 1925, at the Hotel Utah, Salt Lake City, by the local alumni of Jefferson Medical College.

VIRGINIA

Proposed Rural Hospital.—A committee from the Prince Edward-Cumberland Medical Society is cooperating with civic organizations in Farmville to raise $60,000 within a radius of 35 miles for a forty-bed hospital in that city, for which the Commonwealth Fund of New York has offered to contribute $120,000. It is expected, says the *Virginia Medical Monthly*, that a contract will be let about February.

WASHINGTON

Governor Vetoes Basic Science Bill.—The basic science bill, which passed both houses, was vetoed by Governor Hartley, Dec. 28, 1925. The bill would have required applicants to practice medicine, osteopathy and chiropractic to pass an examination in anatomy, physiology, chemistry, pathology and hygiene before taking the professional examination, the examining board to be composed of five members of the University of Washington. The governor pointed out that while it was desirable to raise the standards of professional groups practicing the healing arts, he did not believe the method proposed conducive to the best results.

WISCONSIN

Society News.—Dr. William E. Robertson, Philadelphia, addressed the Milwaukee Academy of Medicine, Milwaukee, Nov. 10, 1925, on "The Value of Pain and Certain Reflex Phenomena in Diagnosis." The academy met jointly with the Neuropsychiatric Society of Milwaukee, Nov. 24, 1925, when Dr. William O. Krohn gave an address on "Psychoneuroses and Their Medicolegal Significance."

Personal.—Dr. Mynie G. Peterman, associate in pediatrics, Mayo Clinic, Rochester, Minnesota, has accepted the position of director of laboratory and research at the Children's Hospital, Milwaukee.——The governor has appointed Dr. Thomas J. Sheehy of Tomah a member of the state board of medical examiners to succeed Dr. Robert B. Cunningham, and Dr. Wilbur N. Linn of Oshkosh to succeed Dr. Minnie M. Hopkins.——Dr. John R. McDill, former resident of Wisconsin and later professor of surgery, University of Philippines, is now commanding officer of the United States Veterans' Bureau Hospital No. 37, Resthaven, Waukesha.

PHILIPPINE ISLANDS

Hospital News.—The Philippine General Hospital, Manila, observed its fifteenth anniversary with appropriate ceremonies, Sept. 9-10, 1925.

Personal.—Dr. Modesta Ignacio has been appointed senior resident physician in the General Hospital at Manila. She was the valedictorian of her class in the Philippines College of Medicine and Surgery in 1924.——The *Revista Filipina de Medicina y Farmacia* states that Dr. F. C. Gómez has left Manila on a Rockefeller Foundation scholarship for a course of study in industrial hygiene at Harvard.

CANADA

Lister Memorial Fund.—The chairman of the subcommittee of finance reported at the council meeting, Nov. 2, 1925, that the Lister Memorial Fund amounted now to $4,500, and that the objective of $5,000 will be reached before the next annual meeting. The executive committee announces that Sir Charles S. Sherrington, professor of physiology, Oxford University, England, will be the second Listerian orator at the annual meeting in 1927.

Committee to Investigate Quackery.—The executive committee of the Canadjan Medical Association announces that, in response to frequent inquiries as to why the association did not investigate certain forms of quackery and charlatanism, a special investigating committee has been appointed to report on fakes, nostrums and quackery, and to recommend action by the association. The members of the committee are Drs. Francis D. McKenty, Winnipeg; Alexander MacG. Young, Saskatoon, and Harold W. McGill, Calgary.

Reduced Fee for Recent Graduates.—The Canadian Medical Association has decided to admit to membership recent graduates at a reduced fee, and to request the provincial associations to make it possible for them to become members of those associations at a similarly reduced fee. The Canadian Medical Association will write each graduate of the last year, offering this privilege, and at the same time, offering the *Journal of the Canadian Medical Association* at a reduced rate. The next meeting of the Canadian Medical Association will be in Victoria, British Columbia, the week of June 1.

GENERAL

Society News.—Dr. Henry R. Storrs, Vancouver, B. C., was elected president of the North Pacific Surgeons' Association at the annual meeting in Spokane, Washington, Dec. 12, 1925; Dr. Park W. Willis, Seattle, vice president, and Dr. Milton G. Sturgis, Seattle, secretary-treasurer.

Automobiles Kill Almost Six Thousand.—The Department of Commerce announces that from Dec. 28, 1924, to Dec. 5, 1925, there were 5,768 fatalities due to the automobile reported from seventy-eight cities of 100,000 population or more in the United States, a daily average of 16.8. In fifty-nine cities in which comparison is possible for practically the same period in the previous year, the total number of deaths due to automobiles was 5,055 and 4,875, respectively. New York City reported 919 automobile fatalities up to Dec. 5, 1925; Chicago, 557; Philadelphia, 288; Detroit, 275; Los Angeles, 213, and Cleveland, 211.

Women's Industrial Conference.—Under the auspices of the Women's Bureau, U. S. Department of Labor, a Women's Industrial Conference will be held in Washington, January 18-21. Delegates from women's organizations throughout the country will be in attendance. Among the speakers will be Dr. Alice Hamilton, assistant professor of industrial medicine, Harvard University Medical School, Boston, and Surg. Gen. Hugh S. Cumming, U. S. Public Health Service; the Marine Band will play at the opening session, which will be broadcast from station WCAP; the conference will close with a dinner presided over by Miss Mary MacDowell, commissioner of public welfare, Chicago.

American Electrotherapeutic Association.—At the midwinter meeting of this association in New York in conjunction with the New England Association and the Philadelphia and New York societies, January 6-9, Dr. Sinclair Tousey, New York, and Dr. James Douglas Morgan, Philadelphia, among others, spoke on "Dangers of X-Rays and Small Versus Large Doses in Deep X-Ray Therapy," respectively; Dr. Richard Kovacs, New York, on "Physical Therapy in Chronic Poliomyelitis," and Dr. William H. Schmidt, Philadelphia, on "Surgical Uses of High Frequency Currents"; Dr. Morris Fishbein, editor, THE JOURNAL, and Dr. Wendell C. Phillips, New York, President-Elect of the American Medical Association, spoke on "The Council on Physical Therapy."

Congress on Internal Medicine.—The tenth annual congress on internal medicine will be held at Detroit and Ann Arbor, Mich., February 22-27. It will be devoted to bedside and clinical laboratory demonstrations as well as to symposiums on modern phases of internal medicine. Prominent places on the program have been accepted by physicians from abroad, Canada and the United States, and all physicians interested in internal medicine who are in good standing in their local

and national medical societies are cordially invited to attend. Four days will be devoted to the work at Detroit, and on one day the congress will be the guest of the University of Michigan at the new 1,100 bed University Hospital, Ann Arbor. Information can be obtained from the secretary-general, Dr. Frank Smithies, 920 North Michigan Avenue, Chicago. Headquarters will be at the Book-Cadillac Hotel, Detroit.

Disease in the Aggregate.—In the annual tabulation of communicable diseases prepared by the United States Public Health Service for 1924, the total number of cases reported by the states, insular possessions and the District of Columbia was as given below. In some instances, comparatively large numbers of cases of disease reported in certain states may be due to the system of reporting rather than to unusual prevalence of the disease.

Chickenpox	202,081
Diphtheria	119,831
Measles	511,305
Mumps	125,354
Pneumonia	108,700
Scarlet fever	184,738
Smallpox	56,488
Typhoid	34,825
Whooping cough	164,050
Poliomyelitis	5,199
Pellagra	8,860
Influenza	20,147

Report of Carnegie Corporation.—The annual report of the president of the Carnegie Corporation, New York, for the fiscal year shows that among the grants made during the last few years are $1,000,000 to the Columbia University and the Presbyterian Hospital of New York building; of $2,000,000 to Johns Hopkins University Medical School, Baltimore, for an outpatient building, and a diagnostic clinic; of $1,550,000 to the New York Academy of Medicine building; of $1,500,000 to Vanderbilt University Medical School, and of $704,000 to the Food Research Institute at Stanford University, Calif. In some cases these grants represent support accorded over a period of years; among the more important grants made during the current year are a supplementary appropriation of $550,000 for the building of the New York Academy of Medicine; $50,000 to the Meharry Medical College; $47,000 to the Institute of Educational Research of Teachers College for the study of psychology of adult education; $40,000 to the Association of American Medical Colleges for the study of medical education, and $15,000 to the Potter Metabolic Institute of Santa Barbara, Calif., for research in the production of insulin.

National Committee for the Prevention of Blindness.—At the annual meeting of this committee, New York, Nov. 30-Dec. 5, 1925, Dr. William H. Wilmer, Johns Hopkins University, Baltimore, pointed out that activities carried on in the life history of the committee were responsible for decreasing about 50 per cent the birth infections causing blindness. Following Dr. Wilmer's address, a resolution was adopted on trachoma among the American Indians, which was as follows:

WHEREAS, Recent studies of health conditions among our 300,000 American Indian wards disclose an appalling prevalence of trachoma with its inevitable damage of vision and ultimate sequelae of blindness; and

WHEREAS, Reports recently made public by governmental agencies charged with guardianship of these 300,000 Indian wards, confirmed also by many sincere friends of the American Indians, show that provisions are now made for a totally inadequate staff of highly trained persons to cope with the ravages of trachoma in the 30,000 cases reported by the Indian agents; and

WHEREAS, The Secretary of the Interior and the Commissioner of Indian Affairs are greatly handicapped in their sincere efforts in behalf of the health and welfare of these 30,000 afflicted Indians, both by shortage of skilled personnel and shortage of funds; therefore, be it

Resolved, That the National Committee for the Prevention of Blindness, in annual meeting assembled, and representing upward of 14,500 persons, who by annual contributions in memberships or by donations, support every hopeful effort in lessening blindness, respectfully urge on Congress such increased financial support and additional legislation as may be required to more quickly alleviate the suffering and ravages of trachoma and minimize its incidence and to better cooperate with all social agencies in a position to help with this promising work so well begun by the Secretary of the Interior and his Commissioner of Indian Affairs.

Post-Graduate Association of North America.—The next tour of the Inter-State Post-Graduate Association of North America will start a few days after the Dallas meeting of the American Medical Association, and the party will reach Cherbourg, France, May 7; Rome, May 14; Florence, May 21; Venice, May 25; Munich, June 4; Prague, June 11; Berlin, June 15; Amsterdam, June 19; Brussels, June 24, and in the meantime visit other medical centers, sailing from Antwerp for home, June 26. The party goes abroad on invitation from the leading medical universities of the countries to be visited; it will be limited to 500 members, including physicians' families and friends. The invitation is extended to all physicians of North America who are in good standing in their state or provincial society. The most eminent clinicians and teachers in these foreign centers will have charge of the program of the assembly, covering every branch of medical science. For those who desire to stay longer, three return sailing dates have been arranged. Dr. William J. Mayo, Rochester, Minn., is president of clinics; Dr. Charles H. Mayo, general chairman of the foreign assemblies, and Dr. George W. Crile, Cleveland, chairman of the program committee. The privileges of the tour will be protected by issuing an admittance card to insure that the applicant is in good standing in his state medical society. Reservations should be made early by sending the reservation fee of $65 for each person to Dr. William B. Peck, managing director, Freeport, Ill.; if for any reason the applicant cannot attend the assembly, the money will be refunded immediately if the request is made as early as six weeks before sailing time. The price for the main tour entire with high grade, first class hotels and first class rail is $1,450; for medium grade, first class hotels and second class rail, $1,185. For medium grade first class hotels and second class rail, the price is $830, provided the member sails home, June 5, at the end of the visit to Italy and Switzerland, by way of Cherbourg.

New County Society Presidents.—The following physicians have recently been elected president of the county medical society indicated:

Dr. Waite Adair, Lorain, Ohio, Lorain County Medical Society.
Dr. Carl Baker, Herrin, Ill., Williamson County Medical Society.
Dr. Harold de Blois Barss, Ypsilanti, Mich., Washtenaw County Medical Society.
Dr. James D. Carey, Fort Collins, Colo., Larimer County Medical Society.
Dr. Lewis Carthrae, Jr., Corder, Mo., Lafayette County Medical Society.
Dr. Frank L. Chenault, Albany, Ala., Morgan County Medical Society.
Dr. Sam T. Cousins, Wetumpka, Ala., Elmore County Medical Society.
Dr. Edward R. Cunniffe, New York, Bronx County Medical Society.
Dr. Nathaniel C. Daniel, Oxford, N. C., Granville County Medical Society.
Dr. Maxwell J. Davis, Mansfield, Ohio, Richland County Medical Society.
Dr. John B. Frisbee, Butte, Mont., Silver Bow County Medical Society.
Dr. Arthur M. Gregg, Joplin, Mo., Jasper County Medical Society.
Dr. James W. Hale, Waco, Texas, McLennan County Medical Society.
Dr. Clinton E. Harris, Woodmen, Colo., El Paso County Medical Society.
Dr. Isaac J. Hoover, Owensboro, Ky., Daviess County Medical Society.
Dr. Olin B. Howell, Jackson, Ga., Butts County Medical Society.
Dr. David L. Jones, Fulton, Ky., Fulton County Medical Society.
Dr. Forrest E. Keeling, Portland, Ind., Jay County Medical Society.
Dr. Benjamin H. King, Granite City, Ill., Madison County Medical Society.
Dr. Oscar P. Klotz, Findlay, Ohio, Hancock County Medical Society.
Dr. Thomas J. McCamant, El Paso, Texas, El Paso County Medical Society.
Dr. Joseph B. McKnight, Sanatorium, Texas, Tom Green County Medical Society.
Dr. Ardsley H. McLaughlin, Aurora, Ill., Kane County Medical Society.
Dr. Josephine Milligan, Jacksonville, Ill., Morgan County Medical Society.
Dr. William Moershel, Homestead, Iowa, Iowa County Medical Society.
Dr. Thomas H. Pope, Newberry, S. C., Newberry County Medical Society.
Dr. Timothy C. Quigley, Owatonna, Minn., Steele County Medical Society.
Dr. Claude C. Rayl, Decatur, Ind., Adams County Medical Society.
Dr. John M. Rees, Cynthiana, Ky., Harrison County Medical Society.
Dr. William W. Rucks, Oklahoma, Okla., Oklahoma County Medical Society.
Dr. William E. Schowengerdt, Champaign, Ill., Champaign County Medical Society.
Dr. Louis C. Skinner, Greenville, N. C., Pitt County Medical Society.
Dr. Solomon E. Spratt, Mount Sterling, Ky., Montgomery County Medical Society.
Dr. Charles J. Wehr, Bellevue, Ohio, Sandusky County Medical Society.
Dr. Clayton S. Whitehead, Naperville, Ill., Du Page County Medical Society.
Dr. Robert J. Woods, Smithville, Mo., Clay County Medical Society.
Dr. Charles B. Yost, Bloomsburg, Pa., Columbia County Medical Society.

News of Epidemics.—There has been an epidemic of trachoma in the Noble County schools in Oklahoma. Pupils from Long Branch, Daley and Otoe were required to present health certificates before attending school as were the Indian students.——An epidemic of measles was present in Cloverdale township, Ind., Dec. 18, 1925, and twenty-five pupils were prevented from attending school on account of that disease.——There were twenty-eight cases of chickenpox in Topeka, Kan., Dec. 8, 1925, at which time the health officer declared it had reached the epidemic stage.——Diphtheria was said to be more prevalent in Milwaukee, Dec. 19, 1925, than at any time in the last five years; there were eighty-one cases under quarantine on that date, and there had been two deaths in the previous week.——Gary, Ind., had just recovered from an epidemic of chickenpox when epidemics of scarlet fever and diphtheria occurred. There were thirty cases of scarlet fever reported in December, 1925, and sixteen

cases of diphtheria, whereas, during all of November, there were only eight cases of diphtheria in the city.——The Ralston schools, Washington, were closed Dec. 19, 1925, on account of an outbreak of scarlet fever.——Six cases of smallpox developed in the St. Francis Indian Mission school, Rosebud. The school was reported closed, Dec. 17, 1925.——Thirteen new cases of diphtheria developed in Fond du Lac, Wis., the week of Dec. 9, 1925, when the city physician, Dr. Arthur C. Dana, issued a warning and instructions about preventive measures.——Syracuse, N. Y., had an epidemic of whooping cough in which there had been fifty-nine cases reported in December, 1925, up to the ninth, making a total of 393 for the year and twelve deaths.——The measles epidemic in Cleveland increased by seventy-five cases, and there were two deaths over the week end of Dec. 20, 1925.——New Philadelphia, Ohio, had thirty-four cases of smallpox under quarantine, Dec. 11, 1925; fifty-two cases were reported in November.

FOREIGN

Automobile Fatalities in France.—A French exchange quotes the official statistics to the effect that in 1924 there were 1,594 deaths in France from automobile accidents, including 484 occupants of the vehicles and 1,142 pedestrians. During the first five months of 1925 the total has been 779, including 269 occupants of the vehicles.

The Beriberi Question.—An expert on health conditions in the Far East, Dr. van Driel, protests against proposed legislation against polished rice. It would raise the price of rice and rouse the antagonism of rice-growing countries and rice-eating peoples. The efforts should be directed to teaching and making available the use of other foods with the rice.

The Declining Birth Rate.—The *Nederlandsch Tijdschrift voor Geneeskunde* mentions that the birth rate in Amsterdam is now below that of Paris, and Berlin is far behind. Another exchange states that in Stockholm the birth rate has dropped from 26.3 per thousand inhabitants in the ten years ending with 1900 to 12.6 in 1924. The corresponding figures for the death rate are 19.1 in 1900 and 11 in 1924.

Imperial University Library.—The Tokyo Imperial University has completed plans for the new library donated by the Rockefeller Foundation, and construction work will start in the spring. The structure will be Gothic, three stories high and a basement, with thirty-three acres of floor space and five reading rooms, which will accommodate 2,000. The library will eventually be open to the general public.

Prize for Work on Pneumonia.—The *Münchener medizinische Wochenschrift* relates that the L. Rosenthal prize of 1,000 marks is offered for a work on bronchopneumonia in children which represents unmistakable and notable progress in its treatment. The work must be written in German and be received by the director of the university children's clinic, Hamburg, before Nov. 15, 1927.

Centennial of Bordeaux Medical Journal.—The one hundred and second anniversary was celebrated with much ceremony as the official centennial of the *Journal de médecine de Bordeaux*, Nov. 14, 1925, and the twenty-fifth anniversary of Prof. X. Arnozan as editor in chief. Prof. R. Cruchet, noted for his works on aviation, epidemic encephalitis, etc., is general manager, and Dr. Vergely, secretary. Besides the special centennial issue, the number for November 25 contains the addresses and reminiscences of the numerous delegates from scientific societies and others.

Bulletin of Hygiene.—A new monthly journal to be called the *Bulletin of Hygiene* will be published by the Tropical Diseases Bureau, London, England, beginning January, 1926; it will review the more important publications on public health and preventive medicine in English, with particular reference to the needs of the British Empire. Dr. J. F. C. Haslan, late government medical officer of health, British Guiana, recently appointed assistant director of the Bureau of Tropical Diseases, will give most of his time to the *Bulletin of Hygiene*, and will be assisted by about thirty-five contributors, among whom will be Prof. E. Mellanby, diet and deficiency diseases; Dr. M. E. Delafield, disinfection; Prof. E. L. Collis, industrial hygiene, and Dr. S. R. Gloyne, tuberculosis. The *Bulletin* will be illustrated, each number containing about eighty-four pages. Orders may be placed with the Tropical Diseases Bureau, 23 Endsleigh Gardens, London, W. D. 1.

Deaths in Other Countries

Sir John MacAlister, late secretary of the Royal Society of Medicine, founder of the *Library*, formerly president of the Libraries' Association and secretary-treasurer of the International Library Conference in 1897, of great influence in amalgamating various medical societies into the Royal Society of Medicine in 1907 and in the acquisition of the present home of the society, died in London, Dec. 1, 1925, aged 69.——**Dr. J. Bartel,** associate professor of pathology, Vienna, and for many years assistant to Professor Weichselbaum, aged 52.

CORRECTIONS

"Umbilical Hemorrhage Accompanied by Deep Jaundice."—In the article by Dr. Honoria Acosta-Sison on page 1201 (THE JOURNAL, Oct. 17, 1925), left hand column, tenth line from the bottom, in the statement "75,000 to 80,000 volts for one minute at a distance of 6 feet," the word "feet" should be changed to "inches."

Health Officer Not a Veterinarian.—THE JOURNAL, Dec. 19, 1925, stated that the health officer at St. Petersburg, Fla., is a veterinarian; it should have stated that the chief of the sanitary division of the health department of that city is a veterinarian. Ray H. Davies, M.D., has been reappointed city health officer of St. Petersburg.

Government Services

U. S. Public Health Service

Senior Surg. Claude C. Pierce was directed, recently, to proceed from Chicago to South Haven, Mich., and return, to inspect a British steamer for entry.——Surg. George W. McCoy was directed, recently, to proceed from Washington, D. C., to Goldsboro, N. C., and return, to make a diagnosis in a case of suspected leprosy.——Surg. J. P. Leake was directed to proceed, recently, from Washington, D. C., to Cincinnati via Niagara Falls, to inspect certain lead mills in that district to ascertain the cause of lead poisoning.——Surg. Charles Armstrong has been directed to proceed from Washington, D. C., to Louisville, Ky., for the conference with state and local health officials regarding an epidemic of infantile paralysis.——Surg. Sanders L. Christian has been relieved from duty in London, England, and assigned to duty at Ellis Island, New York.——Surg. R. Eugene Dyer has been directed to proceed from Washington, D. C., to Alexandria and Fairfax Court House, Va., and return, at such times as may be necessary during the fiscal year, in connection with the standardization of scarlet fever streptococcus toxin and antitoxin.——Surg. Walter C. Teufel has been relieved from duty at Quebec, Canada, and directed to proceed to Rosebank, N. Y., for assignment to duty at the U. S. quarantine station.——Surg. Lionel E. Hooper has been directed to proceed from Antwerp, Belgium, to Rotterdam, Netherlands, and return, during the absence of the medical officer at that place, to inspect vessels proceeding to the United States.——Acting Asst. Surg. Frank L. Van Alstine has been directed to proceed from New Orleans to Washington, D. C., and return, to accompany a patient to St. Elizabeth's Hospital.——Asst. Surg. Gen. Samuel B. Grubbs has been directed to proceed to New York, Providence, R. I., Boston and Fall River, Mass., and return, for conferences with officers in charge relative to quarantine and immigration practice at those stations.——Surg. Joseph Goldberger has been directed to proceed from Washington, D. C., to Milledgeville, Ga., and return in connection with pellagra investigations.——P. A. Surg. Kenneth F. Maxcy has been directed to proceed from Montgomery, Ala., to Savannah, Ga., Charleston, S. C., and return in connection with investigations of Brill's disease.——Surg. David J. Prather, United States Public Health Service, has been relieved from duty at Baltimore and assigned to Dublin, Irish Free State, and P. A. Surg. John F. Mahoney has been relieved at Dublin and assigned to duty at Liverpool.——Asst. Surg. William Y. Hollingsworth has been relieved from duty at Ellis Island, N. Y., and assigned to duty at Cobh, Irish Free State.

Army Personals

Major Earl L. Parmenter and Major William T. Weissinger, Capt. Edward D. Sykes, Capt. H. M. Nicholson and Capt. John B. Powers will sail from San Francisco for duty in the Philippine Islands about April 3 and March 12, respectively, and Major William H. Mitchell from New York, about April 22, for duty at Honolulu.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Dec. 12, 1925.

Medical Research

At the anniversary meeting of the Royal Society, the retiring president, Sir Charles Sherrington, referred to the generous bequest of $50,000 that was received from an anonymous donor for the promotion of medical research. On the recommendation of the tropical diseases committee of the society, it had been applied to investigating kala-azar. At the instance of the society, Major Patton and Dr. Hindle started for northern China in June last in pursuance of that object. And now the society had received from the same generous source a further munificent bequest of more than $140,000. The society had instituted a further Foulerton professorship, and the new Foulerton professor appointed was A. Vivian Hill, author of many contributions to animal physiology. He had placed the knowledge of muscular contraction on a new footing. Taking up the problem from the point which chemical researches had at that time reached, Professor Hill, by his own experiments, in conjunction with his pupils and others, had carried its study much further, especially in its physical aspects. The technic devised and the lines of analysis pursued had been masterly. Professor Hill was determining decisive factors concerned in the performance and maintenance of the physical efforts, and was tracing physiologic characteristics underlying the skill and endurance of the athlete. Such researches promised information of value in regard to the management of muscular effort and its application on a wholesale scale to industrial labor. They also promised further insight into what might be termed manual skill.

Turning to the question of psychology, Sir Charles Sherrington said that psychology was rapidly growing, as was evident from its enhanced and successful application to practical problems lying before it in the sphere of industrial management and conditions of labor. Psychology as a part of experimental biology possessed, of course, recognized ties with the physiology and pathology of the nervous system; but on them it no longer explicitly leaned to the extent it did. Its discipline became more intrinsically its own. This was well and of favorable augury for its immediate progress as an experimental science. Concurrently with that tendency in psychology, it was noteworthy that physiologists—Pawlow and his school, and, in this country, Dr. Anrep—were pursuing analyses of complex behavior of the higher animals under systematic avoidance of all reference, even by implication, to such psychic reactions as accompanied that behavior. Their method applied to animal behavior, in wider ambit than heretofore, the principles of reflex action. To illustrate by one example: In his admirable Croonian lecture in this room last June, Professor Magnus described analyses by himself and his colleagues of the pure reflex behavior of the cat without cerebral hemispheres. He showed how, for example, a moving mouse before the eyes of such a cat attitudinizes the whole mechanism of the animal, exciting from it appropriate posture and direction in readiness for the final spring upon its prey. After that, "all the cat has to do is to jump." To jump or not to jump, that becomes the question. At such a point the work of Pawlow and his school dovetails on to the work of Magnus and his school. Pawlow shows how in the intact animal such a final turning point in its train of reactive behavior—for instance, "jump" or "not jump"—can be studied as what is termed a "conditioned reflex"; he shows how that turning point can be examined as outcome of a balance between physiologic impulsions and restraints, dependent partly on conditions under which the act is called for at the moment, partly on conditions under which it has been called for in the past; that is to say, the mutual time relations of the dominant stimuli, and so on. The result is thus treated as a sum of physiologic factors, positive and negative, interacting under physiologic rules, which can be determined, therefore, as obtaining for the cerebral cortex. In this way is pursued a physiologic study of higher nervous functions of the animal brain, without appeal to psychic reactions, of which, indeed, the method affirms nothing and denies nothing.

This line of attack is a gain both for physiology and for psychology, since psychology and physiology, thus treading an essentially common terrain, yet do so each untrammeled by the other and without explicit reference to the eternal psychophysical problem.

Pharmacists Refuse to Cooperate in the Production of a New Edition of the British Pharmacopeia

The old feud between the pharmaceutic chemists and the general medical council has broken out afresh in connection with the new edition of the British pharmacopeia, which is now in the course of preparation. Sir Donald MacAlister, the president of the council, invited the Pharmaceutical Society to serve on two committees with a view of preparing a new edition. On the first of these committees he proposed that there should be three members nominated from the council of the Pharmaceutical Society and three members from the pharmacopeia committee of the general medical council, the chairman of that body to be chairman of the joint committee. He also invited the Pharmaceutical Society to nominate a committee of reference in pharmacy, this committee to consist of the president of the society and a small number of expert pharmacists. Mr. Philip F. Rowsell, president of the Pharmaceutical Society, replied, stating that his council regarded the proposal of the general medical council as unsatisfactory, and considered that it should be represented on the pharmacopeia committee of the general medical council. The Pharmaceutical Society has also written to the privy council (which has control over the general medical council) making three complaints: 1. The intervals between the various editions of the pharmacopeia are too long. 2. In some respects, each edition is out of date when first published. 3. In the intervals between the publication of the various editions, the work performed in its preparation is adequate neither in quantity nor in quality. After drawing attention to the assistance given by the society in the past, it contends that this assistance has not been recognized in the way in which the society feels that it has a claim to expect; namely, by pharmacists being represented on the body responsible to the general medical council for the production of the pharmacopeia. The council informed the privy council that the society is not justified in accepting the invitation of the general medical council to cooperate. It does not consider that there is any legal obstacle in the way of such cooperation, and it invites the privy council to inquire whether any, and, if so, what, alteration of the law is needed "in order to secure the preparation of future editions on a basis which will result in the pharmacopeia suitable to its users, medical and pharmaceutical, throughout the British empire."

Fatal Explosion in a Boy's Mouth During Operation

In a previous letter (THE JOURNAL, Nov. 7, 1925, p. 1499) this curious case of fatal explosion of a mixture of ether vapor and oxygen during a dental operation was reported. The cause of the explosion remained obscure. In a letter to the *British Medical Journal*, a physician makes an important suggestion. At the inquest it was suggested that ignition

may have been caused by a flame some 6 feet away. The physician now suggests that ignition may have been caused not by the flame but by the syringe used in the operation. If a platinum needle were in use the conditions would have been especially favorable for producing catalytic action on the surface of the warm platinum, thus leading to ignition of the mixture of ether and oxygen. Even in the absence of platinum some metallic part of the syringe might have acted in a similar manner, nickel, iron and even glass and porcelain being known to possess catalytic activities in a greater or a less degree.

The General Medical Council and the Lay Press

Throughout the lay press there is a flood of criticism and even abuse of the general medical council because of its decisions in several recent disciplinary cases to remove from the register the names of physicians who published articles in lay periodicals for the purpose of attracting patients. One case was reported in a previous letter to THE JOURNAL in which the British Medical Association was the complainant. In another case an aged physician was charged with publishing articles on an alleged "consumption cure," sending circular letters to persons not under his charge and endeavoring to induce them to become patients, and endeavoring to induce physicians to use medicaments of whose properties and action they were ignorant, while refusing to disclose to them the formula. In one article, embellished with photographs of the minister of health, the president of the general medical council, and the chief medical officer of the ministry (evidently an attempt to suggest official approval), it was announced that a miraculous remedy for the cure of consumption had been discovered. Sufferers were invited to correspond with *John Bull* (the periodical in which the article appeared), and when they did so were put into communication with the physician. He asked them to forward the names of their medical advisers, through whom the remedy would be applied. But it was added that, in the event of the patient's physician "not being able to administer the remedy," the staff of the advertising physician would arrange for the treatment. In another communication a charge of $10 was intimated. The defense was that what the physician had done was in the interest of humanity and that those who wrote were told to seek the advice of their medical advisers. The formula was kept secret because it was given to the physician in confidence by the discoverer. The council found that the charge had been proved and directed that the name of the physician should be erased from the register.

There can be no difference of opinion that the exploitation of such secret remedies by qualified physicians is a danger to the public, as is the exploitation of nostrums by lay persons, and should be penalized. But there is another kind of medical article which appears in the lay press and—theoretically at any rate—comes under the ban of the general medical council: pronouncements on topics of health which sometimes appear over the signature of well known physicians. The council, however, does not take any notice of them, presumably on the ground that they are in the public interest and not written with any motive of personal gain. However, the lay press argues that anything which appears over the signature of a physician helps to advertise him and that the council shows unfair discrimination in allowing the great ones of the profession to go free while punishing men in humbler positions. In an article on the subject, the *Lancet* regrets that articles on health topics that show the public the directions in which medicine can further help them should be under any ban, and discusses whether the council should draw up rules indicating that certain articles may be published in the lay press over the signature of the writer, while other articles cannot receive similar treatment. The *Lancet* thinks that this could not be done, as charges of partiality would immediately be made, would be difficult to refute, and would endanger the reputation of the council for fearlessness. Therefore the *Lancet* does not believe that any alteration in the practice of the council could meet the dilemma satisfactorily. But our contemporary appears to overlook the fact that in the absence of such rules these very charges are now made. Indeed, it would seem that the existence of such rules, by which every one is called on to abide, would be an answer to the charge of partiality which can be and is much more plausibly made under the present condition in which the council exercises discretion without giving reasons.

PARIS

(From Our Regular Correspondent)

Dec. 14, 1925.

Necrology

Dr. E. Desnos died recently at Pondicherry, during a voyage to India. Early in life, he devoted himself exclusively to urology, in which field he held many offices and won an eminent place. Being ardently fond of work, active and interested in investigation, he wrote a great deal. He published or directed the publication of numerous didactic works, such as the Encyclopédie française d'urologie, in which he was associated with Pousson and many well known collaborators. His Histoire de l'urologie does honor to his memory. In 1896, he founded the Association française d'urologie, and, in 1908, the Association générale, of which he remained the general secretary up to the time of his death. He maintained friendly relations with urologists in foreign countries. His genial personality had won for him many firm friends, so that his death is widely mourned in French medical circles.

The Incidence of Syphilis

Prof. L. Pautrier recently presented a paper on the incidence of syphilis at the Congress on Public Health. The crusade in France against syphilis was begun during the war, but it is only during the last six years that much progress has been made. The culminating point in the spread of syphilis was reached in 1919-1920. Only an inquiry that would include all the hospital services and private practices would determine, with any degree of accuracy, the number of syphilitic persons in the country. In the absence of such documentation, our sole basis for an estimate lies in the statistics on special consultations throughout France. These indicate a 50 per cent decrease in syphilis between 1920 and 1923. Since 1923, the curve has remained horizontal, in the main, though last year there was some indication of an upward trend. This check in progress is due to more or less permanent causes: lack of education of the public; patients failing to consult a physician in due season, and deceptive advertisements of charlatans. Certain temporary causes also have operated: influx of syphilis from foreign countries, as shown by examinations of Polish, Italian, Spanish and Czechoslovakian laborers; and inadequate treatment of syphilis by practitioners, including substitution of the intramuscular route for the intravenous route in the administration of neo-arsphenamines, and the use of bismuth salts without sufficient discrimination. A partial inquiry in neighboring countries reveals that the syphilis curve is much the same as in France. In Belgium, Switzerland, Denmark and Sweden, the maximal incidence was noted in 1919, and was followed by a rapid diminution beginning with 1920—a reduction of from 40 to 50 per cent.

On the whole, progress has been satisfactory. Specific drugs, such as we do not possess in dealing with tuberculosis, cancer or gonorrhea (the incidence of which remains everywhere stationary), are the basis of our success. The fact that, within six years, the incidence of syphilis has been lowered by

50 per cent furnishes proof that the treatment is essentially correct. It would, however, be an error to conclude that six years more will eradicate syphilis. There are signs of newly created foci appearing. He would be a daring prophet who would attempt to assign a precise date for the disappearance of syphilis, but, under the present conditions, it seems not unlikely that that goal may be reached in twenty years or thereabout. In order to bring that to pass, there must be more extended legal help, as well as a new lineup of the forces that are competent to carry the crusade on to a successful finish.

In conclusion, Professor Pautrier made the following recommendations concerning foreign laborers: He has no idea of suggesting vexatious regulations. He would merely require foreign laborers to submit to an examination at the nearest antivenereal station to prove that they were not affected with venereal disease. Such examination could be made the prerequisite for the issuance of a card of identification by the commissioner of police. Reexamination should be required every six months. It would be advisable also to institute surveillance of the large maritime ports, such as Havre and Marseilles, where the disease appears to be on the increase. An examination should be made of the crews of ships as well as of disembarking immigrants. The education of the public in antivenereal prophylaxis is still very inadequate. The prejudice against "shameful diseases" is far from being eradicated. The first task is a lecture campaign; particularly in the universities, the factories, the workshops and the department stores.

Since a campaign of education will induce the public to consult physicians more freely, the number of consultation services should be increased at once; especially prenatal consultation services in the maternity hospitals. In the prisons, too, consultation services and the opportunities for free treatment after examination should be increased. Visiting nurses can ferret out cases, and their services should be utilized more generally in venereal prophylaxis. Special instruction in syphilis should be made obligatory in the medical curriculum and should be covered by a special examination. In view of the difficulties in estimating the number of syphilitics in France, it would be advisable to institute an inquiry throughout the whole country, to which from six months to a year might be devoted.

Malta Fever in France

Aubiant, Dubois, Lafenêtre and Lisbonne called attention at the Congress on Public Health to the recrudescence of Malta fever, from 3,000 to 4,000 cases of which have been observed since 1920 in the region of France bordering on the Mediterranean. These authors have made a detailed inquiry with regard to the distribution of cases in France and as to necessary prophylactic measures. Fourteen departments of France, together with the island of Corsica, representing about one fifth of the area of the country, have been constantly infected since 1920. In five or six other departments there have been a few sporadic cases, and in three further departments cases have been brought in. In the Mediterranean region the disease is derived from sheep perhaps more frequently than from goats. The authors have established that the infection, which has hitherto been believed to be indirect and due to the consumption of milk and cheese of infected sheep and goats, is in reality often of direct origin and due to the close contact of the country population with these animals. For this reason, the authors, taking account of the possible connection of the disease in man with certain epizootics, and more particularly with infectious abortion in sheep and goats, recommend that infectious abortion be added to the list of notifiable diseases as set forth in the law of June 21, 1898 (rural code).

GENEVA

(From Our Regular Correspondent)

Dec. 10, 1925.

Session of Swiss Association Against Tuberculosis

At the fifth scientific session of the Swiss Association Against Tuberculosis, recently held, the subject for discussion was the serologic methods of diagnosis of tuberculosis, with special reference to Besredka's reaction. Dr. Charles Saloz of Geneva, the first speaker, stated that he had employed this reaction in a large number of subjects. Some of these were healthy; others either were suspected of having tuberculosis or actually were tuberculous; still others had syphilis or were convalescent from various diseases. Although he did not agree with Professor Rist of Paris that this reaction is devoid of value, he did not think it of equal value in the diagnosis of tuberculosis with Wassermann's reaction in syphilis. Saloz remarked that in healthy subjects without symptoms of tuberculosis, Besredka's reaction is generally negative, while in cases of confirmed tuberculosis it is positive in about 73 per cent. A negative Besredka reaction does not establish absence of tuberculosis, nor a positive reaction its presence. A positive reaction in the presence of a pleural or peritoneal fluid collection, or hemoptysis, should impel a search for tuberculosis. The intensity of Besredka's reaction varies in different cases as well as in the same patient. It offers no parallelism with the skin reaction. This is not astonishing because the latter symptom is one of allergy, while Besredka's reaction proves the presence of an antibody.

The second paper on this subject was presented by Dr. Wanner of Lausanne. In the discussion following these two papers, Dr. Jaquerod of Lysin remarked on the variations in Besredka's reaction when secondary infections existed, and the absence of the reaction in cases in which the duration of the diseases was so short that antibodies had not had time to form, as in tuberculous meningitis.

Professor Silberschmidt of Zurich said that his results with Besredka's and Wassermann's reactions were in accord with those of Saloz and Wanner. Both of them possess certain value, although at present definite conclusions are not possible.

Dr. Machard of Geneva recorded the late results of the treatment of tuberculous ostearthritis by Mosetig's procedure of iodoform packing, and said that the patients were immobilized in plaster on an average of six weeks.

Dr. Dopper of Lucerne complimented Dr. Machard on his results with this well tried old procedure, which, combined with helio-alpine treatment, shortened the convalescence of tuberculous ostearthritis.

Dr. Burnand referred to the treatment of infectious complications of pneumothorax by oleothorax, devised by Dr. Bernon of Chal in 1921, which had given him brilliant results. In a case of pneumothorax with a pleural exudate which persisted in recurring in spite of several aspirations, he introduced into the pleural cavity, after irrigation with physiologic sodium chloride solution, 20 cc. of 5 per cent gomenol oil and allowed it to remain in order to prevent the exudate from recurring. In this respect, Dr. Maurice Gilbert insisted on the necessity of dividing existing pleural adhesions, especially with the thermocautery, in order to assure collapse of the lung in cases of artificial pneumothorax.

Other papers were read, but space does not permit their mention.

Digestive Tract Disease Due to War Gas

Digestive tract lesions due to gassing during the late war were early or secondary, according to the time of their development or their duration. But a third category of digestive disturbances due to poison gas has been much studied by the French. Months or even years afterward the digestive

apparatus may present serious lesions and accidents, usually chronic in character. Loeper has remarked that 7 per cent of dyspepsias or gastritis coming under his observation were due to this toxic factor. Usually they are instances of simple dyspepsia, but some are erosive gastritis with more or less deep ulceration.

Dr. A. Delamare's recent thesis, the conclusions of which follow, gives a good summary of the question: Besides the acute respiratory accidents the asphyxiating gases produced early digestive accidents, whose lesions and symptoms are those of acute gastritis. In most instances recovery ensued, but they may give rise to late accidents and dyspeptic sequelae. Ordinary simple gastritis is usually the result, and persistent gastritis is one of the less common types. But it can lead to chronic morbid changes, the most important of which are hyperchlorhydria, less frequently an ulcer with its secondary accidents, cicatricial complications and cancer. This is of the highest interest, not only from the purely nosological standpoint, but also on account of its importance for computing the amount of pensions, and the practitioner should be cognizant of these late appearing digestive accidents due to gas. As to treatment, there are two principal indications: the cicatrization of the lesions of the gastric mucosa and the improvement of the patient's general health. Diet and treatment are to be prolonged.

Lilliputian Hallucinations

Dr. H. Flournoy, privatdozent at the Faculty of Medicine of Geneva, reports an interesting case of atypical lilliputian hallucinations in a man, at 86, with cataract. His health had been good and visual hallucinations began when sight had considerably diminished. Elementary illusions first occurred —simple entoptic phenomena due to ocular disturbances—in the form of a suddenly appearing image of a luminous fan. But the hallucinations strictly speaking, which occurred daily for six years until the patient's death, are to be attributed to a toxic etiology, although this does not explain either the contents or lilliputian character of the hallucinations. The optic theory is insufficient to account for the conditions observed. Hence some observers suppose that these phenomena are a kind of return or a retrogression to minute conceptions of a child's imagination. In Flournoy's case two very special and exceptional characters of the lilliputian hallucinations seem to confirm this hypothesis. The patient would take in his hand small personages or animals that he thought he saw; he even could feel them and passed some time in examining them as a child would its toys. He would give them orders and himself would contribute to their creation by moving into space minute masses or molecules which he supposed contained the germs of new beings. There is, perhaps, here a psychologic complex at the basis of the symbolic hallucinations of birth that this patient likewise presented very distinctly, although infrequently.

The Gasserian Syndrome

Pain due to pathologic change in the gasserian ganglion offers a typical symptomatology, as recently pointed out by F. Levy (*Gazette des hôpitaux*, 1925). The syndrome evolves in distinct phases, the first two of which are constant. The first phase consists of pain, which may persist or may endure merely for a few days. The second phase consists of neurologic pains which, when continued, produce a sensation of deep seated weight, occasionally a paresthesia to cold. When the pain is paroxysmal it is like an electric discharge, the attacks at first occurring at distant intervals, finally daily and becoming subintrant. The three branches of the trigeminus are progressively involved, the ophthalmic branch being the first, as is evident by frontal and supra-orbital pain; then the upper and inferior maxillary branches are involved, so that the entire half face is painful. The second phase is characterized by a paralysis partially or entirely involving the sensitive elements of the fifth nerve. Objective sensibility is diminished or occasionally abolished in part or totally on the side of the face affected, and not infrequently the motor branch of the nerve may participate in the paralysis with all its immediate consequences. Muscular atrophy rapidly ensues. Trophic disturbances represent the third phase; they are not constant, nor are they uncommon, consisting of photoprobia or neuroparalytic keratitis. If the eyeball is not properly protected, the process will end in exfoliation, suppuration and perforation of the cornea, hernia of the iris or panophthalmia. A dry, squamous state of the skin, dental caries, atrophic rhinitis and herpetiform eruptions are other clinical occurrences. The gasserian syndrome is frequently associated with paralysis of the cranial nerves, especially the motor nerves of the eye, peripheral paralysis of the facial type, edema of the papilla and optic neuritis.

The acute and subacute gasserian syndromes usually are dependent on inflammatory lesions, and when accompanied by fever and meningeal phenomena are very serious, usually culminating in death. If due to a neoplasm, the chronic syndrome progressively leads to the patient's death.

To be of any use, treatment must be dependent on exact diagnosis. If due to an osteitis of the petrous portion of the temporal bone the ganglion had better be removed, especially when the syndrome is very marked and complicated by symptoms of meningitis or the onset of thrombosis of the cavernous sinus. In syphilitic patients, modern intensive treatment of syphilis is to be carried out. Injections of alcohol for relief of pain are to be discarded. Retrogasserian neurotomy is to be recommended in both essential and symptomatic neuralgia of the gasserian ganglion; but unless the pain is too severe, it is wise to postpone operation, because not infrequently the pain disappears when other disturbances of objective sensibility develop.

PRAGUE

(From Our Regular Correspondent)

Dec. 4, 1925.

Sickness Insurance for Public Officials

The law concerning sickness insurance for public officials was passed by parliament, Oct. 15, 1925. The law applies to all public officials, including teachers of elementary schools. The benefits include free medical service, assistance at childbirth, free medicine and therapeutic appliances, and free treatment of the members of the family of the insured. Public officials, in case of sickness, receive their regular income for a year, after which time they receive a pension, if the sickness continues. Necessary transportation of the sick is paid for by the insurance. The treatment is understood to comprise that given by a general practitioner, by a specialist or in institutions. Patients are free to choose their own doctors from a list of insurance physicians. Elsewhere, the prevalent system in insurance associations is to have all patients seek the advice of some one contract physician, whether they like him or not. In such a system, physicians have no incentive to maintain a high standard. Insurance associations have been defending themselves against the scheme in force in Czechoslovakia because the cost is somewhat higher and the management more difficult. The insurance is to be administered by a committee of five formed in each political district. The chief of the political administration of the district is to be the president of the committee, the remaining four members being elected by the insured. The insurance premiums are to be 2 per cent of the salary of the insured.

This law is the final one in the system of sickness insurance in Czechoslovakia. Sickness insurance of inde-

pendent wage earners is optional. Private practice in Czechoslovakia in the future will be confined to the very rich who did not enter the sickness insurance scheme and to those who seek a private physician because they are not satisfied with the service given to them by the insurance practitioner.

Cancer Association

The Association for the Study and Combating of Cancer in the Czechoslovak Republic has added a new function. It has opened a station for biopsy of malignant and suspicious growths where specimens may be examined free for health officers, dispensaries, hospitals and even private practitioners in cases of patients who are unable to pay for the examination. The station is in the hands of Prof. R. Kimla. Physicians are urged to send not only those specimens on the examination of which depend the operative procedures to be adopted, but also specimens from persons in whose cases conservative methods are being employed. Histologic examination is desirable because certain tumors require a certain dosage of radium or roentgen rays which in other cases might have a harmful effect. Histologic examination is also necessary if cure of a malignant growth is claimed and if recurrences are to be avoided. The association hopes to stimulate the interest of physicians in the campaign against malignant growths and to put the measures against them on a scientific basis. Since the station is connected with the university, it will have a supply of material for didactic purposes.

Pharmaceutic Specialties

Pharmaceutic specialties cannot be classed with "patent medicines" because their composition must be given on the container; but the way they are being sold gives them a resemblance to quack remedies. Before a pharmaceutic preparation can be put on the market, approval of the remedy by the state health council is necessary. The application for approval is accompanied by a detailed description of the composition of the remedy and the certificate of a registered practitioner that he has controlled in his practice the effects of the remedy. This cumbersome procedure is being adhered to for pharmaceutic preparations that are manufactured in the country. The flood of imported remedies is such that the state administration cannot control whether a specialty is being sold legally or illegally. The function of regulation is to be vested in the drug control division of the state institute of hygiene. In the meantime, efforts are being made by the medical organizations to bring order into the trade. The price paid by a private patient for such a remedy is high because he has to pay not only for the remedy but also for advertising and distribution. Some of the firms have even proposed to practitioners a remuneration for prescribing their preparations. Lately a list of reputable pharmaceutic preparations has been issued in which the name, composition, indications, form of administration, price and producer are given for each preparation. The commercial advertising of the firms was confined to pages printed on colored paper, so that the official text of the booklet gives only the facts about the preparation.

Institute of Hygiene

The state institute of hygiene in Prague, which is being built in cooperation between the Czechoslovak government and the International Health Board of the Rockefeller Foundation, was opened, November 5. The first four divisions of the institute have been put into operation. The first division produces serums and bacterial vaccines; the second, smallpox vaccine; the third is for antirabies treatment, and the fourth is a bacteriologic service laboratory. The rest of the institute, comprising five more divisions, is to be completed within the next three years. Prof. Pavel Kucera, who has been in charge of the construction of the institute, has been appointed acting director. Professor Kucera is a graduate of the Czech Prague Medical Faculty; he obtained his medical degree in 1897. Since then he has had wide and long experience in pathology, epidemiology and hygiene.

Physicians' Study Tour

The Young Generation of the Czechoslovak Physicians recently organized a study trip to Switzerland and France, in which 120 members participated. In Switzerland, the famous climatic resorts of Davos and Leysin were visited and the group was given a reception at the headquarters of the health section of the League of Nations in Geneva. They were received in Paris at the Sorbonne by the dean of the medical faculty, Professor Roger. The head of the group, Dr. C. Amerling, delivered a lecture on "Purkinje and Claude Bernard," in the Collège de France. Dr. Amerling demonstrated the analogy between the Czech and French methods of scientific investigation. On this occasion a Czecho-French medical society was formed for the interchange of ideas in medicine.

BERLIN

(From Our Regular Correspondent)

Nov. 21, 1925.

Heart Diagnosis by Means of Electrical Auscultation

Some time ago, Dr. Leo Jacobsohn of Berlin reported a method of electrical amplification of the heart sounds in man, so that they may be heard by persons even at great distances. As amplifiers, the same cathode tubes were used that are employed in radio apparatus. The radio station at Berlin has transmitted heart sounds 850 kilometers. The subject was in the reception room of the transmitting station, and Swiss physicians at Davos were able to distinguish clearly the rhythm of the heart, but not the more delicate heart sounds. A few days ago, Dr. Jacobsohn demonstrated an American improvement of the procedure. The method makes use of the tone filters described by Geheimrat Wagner, and which already play an important part in modern telephony. They separate several conversations that pass over the same wire at the same time. The filters let through certain tones for which they are keyed, while other tones that are not desired are "cut out" or held in check. For example, if, in the presence of a valvular defect, there is a soft heart tone and a loud murmur that obscures or drowns the heart tone, the heart tone can be amplified and the murmur partially suppressed. The apparatus renders the heart tones audible in a good-sized room. The receiving instrument is placed on the chest wall. At the demonstration, each of the participants was able, with the aid of the small telephone at his seat and the receiver, to hear the heart sounds of the various subjects. Therein lies the importance of the discovery for the purposes of instruction.

Dr. Jacobsohn demonstrated also an electrical audiometer, by means of which the examining physician is able to test the power of hearing in each ear. The sounds that are brought to the ear of the examinee through a telephone can be gradually weakened through applied resistance. The examinee presses a button which lights a bulb when the sound ceases to be audible to him. The loss of hearing, or the degree of hardness of hearing, is recorded on a graduated percentaged scale.

Industrial Accidents and Fatal Disasters in Prussia

Fairly reliable statistics are available with reference to notifiable industrial accidents, although many accidents of ordinary occurrence go unrecorded. Also the records of fatal disasters are reasonably accurate, as presented annually by the Prussian bureau of statistics. The number of accidents occurring in 100 industrial establishments has dropped from 111 in 1913 to eighty in 1924. In 1913, there were fifty-four

accidents to 1,000 workmen, and in 1924 the number was decreased to forty-five. In 1913, there was one fatal accident recorded for every 150 industrial establishments and for every 2,000 workmen, whereas, in 1924, there was a fatal accident for every 300 establishments and for every 4,000 workmen. This marked betterment is due mainly to improvements in the safety devices on machines, the education of the workmen through instruction in the avoidance of accidents, and the better preparations for first aid.

On the other hand, a comparison of the years 1913 and 1923 shows no decrease in the number of fatal disasters in general but rather a slight increase. In 1913, there were 40.56 fatal disasters per hundred thousand of population, and, in 1923, there were 40.7. There was an increase in the 1-5 and in the 5-15 age-groups, the most important groups from the political and economic standpoints. There has been an increase in the number of fatalities from drowning. The proportion of fatal accidents caused by driven automobiles was, in 1913, 13.2 per cent; in 1922, 19.6 per cent, and, in 1923, 27.6 per cent, which denotes 100 per cent increase. It will be seen, therefore, that, while the accidents in industrial establishments in Prussia have decreased, there has been no reduction in the total number of fatal disasters in general.

Death of Professor Kirchner

Prof. Martin Kirchner died suddenly in Berlin, Nov. 11, 1925. Kirchner was called in 1896 as an assistant in the medical department of the ministry of public instruction. In 1898 he became medical counselor and in 1911 ministerial director of the medical department, now associated with the ministry of the interior. July 1, 1919, Kirchner was retired, at his own request. During the twenty-three years that Kirchner was connected with the Prussian department of medicine, he exerted a decisive influence on the public health service of Prussia. His chief service was the creation of a modern system for combating epidemics. He was influential in the preparation of the *Reichsseuchengesetz* (law pertaining to epidemics) enacted in 1900. The Prussian law pertaining to epidemics (*Landesseuchengesetz*), which was introduced in 1905, was mainly his work. It became his constant endeavor to improve this act. He established numerous bureaus for medical examination, as an aid to the health officers in combating epidemics. He was especially active also in the crusade against tuberculosis. In 1911, when he became the first medical man to occupy the position of director of the department of medicine, he applied himself to improving the training of physicians, the securing of better salaries for state health officers, the furtherance of school hygiene and especially the care of the teeth. With the outbreak of the war, he introduced measures that insured the immediate readiness of a large number of capable physicians and nurses for the attendance and care of the wounded. Kirchner was able to note that, during and after the war, Germany prevented the spread of any epidemics of importance. Even after his retirement, Kirchner delivered lectures and wrote scientific articles to promote the cause of public health.

Marriages

HERMAN L. HORWITZ, Chicago, to Miss Rose Suzanne Mishlove of Ripon, Wis., Nov. 12, 1925.

RUDOLPH GOLDBERG, New York, to Miss Ann Leven of Newark, N. J., Nov. 21, 1925.

HAVILAND CARR to Miss Ordella Manson, both of Covington, Ky., Nov. 28, 1925.

GEORGE SCHOENHOLTZ to Miss Jean Greenfield, both of New York, Nov. 13, 1925.

Deaths

Samuel Lewis Ziegler ✠ Philadelphia; University of Pennsylvania School of Medicine, Philadelphia, 1885; member of the American Academy of Ophthalmology and Oto-Laryngology, the American Ophthalmological Society, the Pan-American Medical Congress, 1893, the International Ophthalmological Congress, Edinburgh, 1894, Utrecht, 1899, Lucerne, 1904, Naples, 1909, the International Medical Congress, Paris, 1900, London, 1913; formerly director of public health and charities; member of the permanent committee on comprehensive plans of Philadelphia; at one time on the staffs of the Germantown, the Episcopal and St. Joseph's Hospitals; attending surgeon and executive medical officer of the Wills Eye Hospital; aged 64; died, January 4, of pneumonia.

John Taylor Bottomley ✠ Boston; Medical School of Harvard University, Boston, 1894; member of the American Surgical Association, the Boston Surgical Association, the American Society of Clinical Surgeons, and the New England Surgical Society; assistant in surgery at his alma mater, 1901-1903; associate in surgery, Harvard University Graduate School of Medicine; surgeon in chief at the Carney Hospital since 1910; consulting surgeon to the Haverhill (Mass.) City Hospital; Spanish-American War veteran; aged 56; died, Dec. 17, 1925, of heart disease.

Edward J. Eberle, Brooklyn; Kentucky School of Medicine, Louisville, 1898; member of the Medical Society of the State of New York; and the Brooklyn Ophthalmological Society; formerly member of the board of health; on the staff of the Brooklyn Eye and Ear Hospital; aged 59; died, Dec. 18, 1925.

Dolphus Edward Compere, Dallas, Texas; Baylor University College of Medicine, Dallas, 1909; served in the M. C., U. S. Army, during the World War; aged 39; died, Dec. 11, 1925, at Hot Springs National Park, Ark., following an operation.

Peyton Eli Cromer ✠ Springfield, Ohio; Medical Department of the University of Wooster, Cleveland, 1892; aged 65; died, Dec. 11, 1925, at the City Hospital, of injuries received when the automobile in which he was driving was struck by a train.

Edmund J. Wunderlich, Louisville, Ky.; Cleveland University of Medicine and Surgery, 1882; formerly emeritus professor of pediatrics, Southwestern Homeopathic Medical College and Hospital, Louisville; aged 71; died, Dec. 10, 1925.

Ferdinand William Wiehe ✠ Captain, U. S. Army, retired, Denver; Ohio State University College of Medicine, Columbus, 1915; served in the M. C., U. S. Army, during the World War; aged 33; died, in December, 1925, of tuberculosis.

Edwin De Witt Cronk, Winfield, Md.; University of Maryland School of Medicine, Baltimore, 1884; member of the Medical and Chirurgical Faculty of Maryland; aged 64; died, Dec. 10, 1925, of heart disease.

Marcus Leonidas Brown, Brownwood, Texas; Memphis (Tenn.) Hospital Medical College, 1889; member of the State Medical Association of Texas; aged 58; died, Dec. 2, 1925, at a hospital in Dallas.

Joseph Johnson Gordon, Detroit; Medical Department of the University of Wooster, Cleveland, 1888; member of the Michigan State Medical Society; aged 59; died, Dec. 16, 1925, of heart disease.

George Vickery Foster ✠ New York; Dartmouth Medical School, Hanover, N. H., 1882; attending physician to St. Andrew's Convalescent Hospital; aged 65; died, Dec. 16, 1925, at Boston.

Benjamin B. Sayle, Coffeeville, Miss.; Louisville (Ky.) Medical College, 1881; member of the Mississippi State Medical Association; bank president; aged 67; died, in December, 1925.

James A. C. Rodgerson, Hunters River, Prince Edward Island, Canada; Dalhousie University Faculty of Medicine, Halifax, N. S., 1900; died, Oct. 16, 1925, of hemorrhage.

Howard E. Felton ✠ Cartersville, Ga.; Atlanta Medical College, 1893; health officer of Cartersville; veteran of the Spanish-American War; aged 56; died, Dec. 11, 1925, at Rome.

Jonathan Ackerman Coles ✠ Scotch Plains, N. J.; Medical Department of Columbia College, New York, 1868; collector of rare manuscripts and bronzes; aged 82; died, Dec. 16, 1925.

Thomas H. Woolsey, Greeneville, Tenn.; University of Tennessee College of Medicine, Memphis, 1900; aged 55; died, Dec. 7, 1925, of acute articular rheumatism.

Edward R. Pennington, Owensboro, Ky.; University of Louisville School of Medicine, 1875; Confederate veteran; aged 82; died, Dec. 14, 1925, at Evansville, Ind.

Charles Walter Burns, Lucky Lake, Sask., Canada; Queen's University Faculty of Medicine, Kingston, Ont., 1916; aged 42; died recently, at a hospital in Saskatoon.

Charles Henry Winterer ✠ St. Louis; National University of Arts and Sciences Medical Department, St. Louis, 1918; aged 32; was shot and killed, Dec. 9, 1925.

James Paul Irvine Clancy, Semans, Sask., Canada; Queen's University Faculty of Medicine, Kingston, Ont., 1908; died recently, of a poison taken accidentally.

Samuel Wilson McEwan ✠ Lieutenant, U. S. Navy, Cincinnati; University of Minnesota Medical School, Minneapolis, 1910; aged 40; died, Dec. 10, 1925.

Michael F. Riordan, Fulton, N. Y.; State University of Iowa College of Medicine, Iowa City, 1874; aged 73; died, Dec. 10, 1925, following a long illness.

Pellie Green Graves ✠ Scottsville, Ky.; Vanderbilt University Medical Department, Nashville, Tenn., 1915; aged 52; died, Dec. 15, 1925, at Nashville.

Lowell M. Jones, Portland, Ore.; Willamette University Medical Department, Salem, 1897; aged 55; died, Dec. 4, 1925, following a long illness.

Joseph Christian Roth ✠ Syracuse, N. Y.; Medical Department of the University of the City of New York, 1886; aged 60; died, Dec. 19, 1925.

Ulysses N. Thornton, Leland, Ill.; Trinity Medical College, Toronto, Ont., Canada, 1887; aged 60; died, Dec. 13, 1925, of cerebral hemorrhage.

John Frank Robertson ✠ Indianapolis; Medical College of Indiana, Indianapolis, 1895; formerly county coroner; aged 59; died, Dec. 12, 1925.

James W. Taylor, Luthersville, Ga.; Atlanta Medical College, 1875; formerly member of the state legislature; aged 93; died, Dec. 15, 1925.

Howard Morgan Smith, Palmetto, Fla.; Atlanta (Ga.) Medical College, 1895; aged 54; died, Dec. 14, 1925, at a sanatorium in Atlanta.

Sherman Tecum Davis, Anderson, Ind.; Willamette University Medical Department, Salem, Ore., 1885; aged 62; died, Oct. 22, 1925.

Channing B. Kimball, West Liberty, Iowa; State University of Iowa College of Medicine, Iowa City, 1874; died, Dec. 26, 1925, of uremia.

Charles W. Prettyman, Chicago; Medical Department of Columbia College, New York, 1888; aged 72; died, Dec. 16, 1925, of carcinoma.

William Oliver Henderson Ross, Cincinnati; Eclectic Medical Institute, Cincinnati, 1904; aged 46; died, Dec. 6, 1925, of heart disease.

Willett William Whitehead, Mount Holly, N. J.; Hahnemann Medical College of Philadelphia, 1881; aged 65; died, Dec. 15, 1925.

Reuben Woods, Quincy, Ill.; Bellevue Hospital Medical College, New York, 1866; Civil War veteran; aged 89; died, Dec. 9, 1925.

Henry W. Chapman ✠ White Hall, Ill.; St. Louis Medical College, 1877; aged 75; died, Dec. 13, 1925, of cerebral hemorrhage.

James E. Roles ✠ Union, W. Va.; Medical College of Virginia, Richmond, 1897; aged 52; died, Dec. 10, 1925, at Richmond.

Henry C. Leonard, Santa Ana, Calif.; Hahnemann Medical College of Philadelphia, 1878; aged 76; died, in December, 1925.

William W. Shirey, Houston, Texas; Memphis Hospital Medical College, 1903; aged 52; died, Nov. 16, 1925, at Dallas.

Rebecca Weeks Wiley, Laconia, N. H.; Boston University School of Medicine, 1882; aged 78; died, in December, 1925.

Samuel W. Radcliffe, Moose Jaw, Sask.; University of Toronto Faculty of Medicine, 1897; aged 58; died recently.

Elbert Lu Verne Fish, West Valley, N. Y. (licensed, New York, year unknown); aged 72; died, Dec. 6, 1925.

Josephus Younger, Bowie, Texas; St. Louis Medical College, 1879; aged 78; died, Nov. 26, 1925.

W. L. Hines, Warsaw, Ind.; Fort Wayne College of Medicine, 1892; aged 59; died, Oct. 29, 1925.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE JOURNAL'S BUREAU OF INVESTIGATION, OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER GENERAL MATERIAL OF AN INFORMATIVE NATURE

TREPOL AND NEOTREPOL NOT ACCEPTABLE FOR N. N. R.

Report of the Council on Pharmacy and Chemistry

The Council has authorized publication of the following report.

W. A. PUCKNER, Secretary.

Trepol and Neotrepol are bismuth preparations for use in the treatment of syphilis. They are manufactured by the Laboratories Chenal & Douilhet, Paris, and marketed in the United States by the Anglo-French Drug Co., New York.

Trepol: This is offered in the form of ampules stated to contain from 3 cc. to 4 cc. of a mixture having 0.1 Gm. of basic tartrobismuthate of potassium and sodium in each cubic centimeter, suspended in arachis oil. According to the French manufacturer, the "Basic tartrobismuthate of potassium and sodium" has the following chemical formula: $CO_2Na.CHOH.CH(OBiO).CO_2K.4(BiO_2H)$. The product should, therefore, contain bismuth (Bi) 74.44 per cent, potassium (K) 2.79 per cent, and sodium (Na) 1.65 per cent.

A specimen of the "tartrobismuthate of potassium and sodium" which is stated to be contained in Trepol ampules was obtained through the American agent from the Laboratories Chenal & Douilhet, and submitted to the A. M. A. Chemical Laboratory for analysis. A study carried out in the Association's Laboratory ("What is the Composition of Bismuth Tartrates Used in The Treatment of Syphilis?" L. E. Warren, Journal A. M. A., April 4, 1925, p. 1067) brought out the fact that, instead of containing amounts of bismuth, potassium and sodium which were in accord with those required by the formula, the product contained 72.69 per cent of bismuth (Bi), but only 0.86 per cent of sodium (Na), and 1.63 per cent of potassium (K). In addition, the product was found to contain 1.51 per cent calcium (Ca), 4.79 per cent of carbon dioxid and 8.15 per cent of water-soluble material, chiefly potassium sodium tartrate. The analysis of Trepol brought out the fact that the product is not potassium sodium bismutho-tartrate, as claimed; moreover, such needless impurities as calcium carbonate and uncombined potassium sodium tartrate were found.

The manufacturer finally admitted to his American agent that the analysis made in the A. M. A. Chemical Laboratory was correct. He held, however, that the composition found by analysis of the specimen furnished by him does not correspond to the composition of the product ordinarily supplied, "which should have the composition corresponding to the published formula."

The agent was informed that his principal had presented no evidence for his statements and that, before his claims in regard to the composition of the product contained in Trepol ampules could be accepted, evidence to support these claims of composition must be submitted in the form of an analysis carried out by him and of specimens which agree with such analysis.

The requested evidence has not been received. The Council is, therefore, obliged to conclude that the product offered the medical profession as "Trepol" does not represent a "tartrobismuthate of potassium and sodium" as claimed, but is, instead, essentially a basic bismuth tartrate. The evidence leads to the further conclusion that the manufacture of "Trepol" has not been carried out under adequate control: hence, the Council declared Trepol ineligible for New and Nonofficial Remedies because its composition is not correctly declared and because no adequate tests are furnished for the control of its identity and uniformity.

Neotrepol: This, too, is supplied in the form of ampules, each stated to contain 2.5 cc. of a suspension of precipitated metallic bismuth in an "isotonic glucose medium."

A specimen of the bismuth metal used in the manufacture of the ampules, supplied by the manufacturer, and specimens of Neotrepol ampules were referred to the A. M. A. Chemical Laboratory for verification of the claimed purity of the bismuth metal and of the composition of the ampules. The following is the report of the Laboratory:

LABORATORY REPORT

"One original specimen of Neotrepol Powder Billault (Laboratories Chenal & Douilhet, Paris) was submitted to the Council on Pharmacy and Chemistry for examination. The product is used for preparing Neotrepol ampules; according to the manufacturer, it consists of precipitated bismuth 'secured by the so-called Boettger reaction (a reduction of salts of bismuth in an alkaline medium'). The metal finely divided thus prepared has a titration (*titrage*) of 96.5 per cent of bismuth.

"Qualitative examination showed the absence of arsenic. A small amount of water-soluble material was present and also particles of 'dust.' The amount of bismuth found in two determinations was 94.51 per cent and 94.43 per cent, respectively. The product contains, therefore, somewhat less than the claimed amount of bismuth, though this discrepancy probably is not serious.

"Original packages of Neotrepol, 'Precipitated Bismuth in Isotonic Solution for Intra-muscular Injection' (Laboratories Chenal & Douilhet, Paris—the Anglo-French Drug Co., New York, Distributor) were submitted to the A. M. A. Chemical Laboratory for examination. The box contained twelve ampules; each ampule contained a black sediment and a clear supernatant liquid. On shaking the contents in the ampules (which also contained two glass beads), a black suspension formed but the bismuth settled out relatively soon; the amount of the contents ('suspension') in the ampules examined was about 2⅓ grams each. The 'Formule' given on the label is

Bismuth precipite	0 gr. 10
Serum Isotonique	1 cm.³
pour un centimetre cube	

"Quantitative estimations of bismuth were made on the contents of four ('A,' 'B,' 'C' and 'D') separate ampules:

	Amount Used	Wt. of Bi_2O_3 Obtained	Gm. of Bi per 1 Cc. or 1 Gm. of Suspension
A	2.2470 Gm.	0.1639	0.0654 per Gm.
B	2.3463 Gm.	0.1858	0.0710 per Gm.
C	2.0 cc.	0.1619	0.0726 per cc.
D	2.0 cc.	0.1811	0.0812 per cc.

"It will be noted that the bismuth content of the individual ampules is not constant, varying from approximately 65 per cent to 81 per cent of the amount claimed.

"The contents of one ampule were transferred to a test-tube, and after thorough agitation, the rate of 'settling' noted. After 15 seconds the meniscus was easily seen; after 30 seconds the upper fourth portion of the liquid column was clear and in two minutes the product was well settled. This means almost certainly that the amount of bismuth injected will vary most widely."

The report of the A. M. A. Chemical Laboratory shows that, instead of containing 0.1 Gm. metallic bismuth to each cubic centimeter, four ampules taken at random from a single box contained, respectively, 0.065 Gm., 0.071 Gm., 0.073 Gm., and 0.081 Gm. to each cc., that is, they contained from 65 per cent to 81 per cent of the amount claimed. It is obvious that medication with Neotrepol ampules is inexact. In addition, the bismuth separates from its glucose so rapidly that this separation must contribute still further to indefinite dosage of this potent drug.

The Council declared Neotrepol ineligible for admission to New and Nonofficial Remedies because the amount of active ingredient contained in the ampules is not in accord with the amount declared to be present.

Tuberculosis Mortality in Porto Rico.—The tuberculosis mortality in Porto Rico is high: 204.5 per hundred thousand inhabitants in 1923-1924, against 95 in the United States. The larger towns, where housing conditions among the poor are generally very bad, and those where the tobacco industry constitutes the main occupation of the people, show the highest mortality.—Pastor, J. R.: *Porto Rico Health Rev.* **1**:26 (July) 1925.

Correspondence

"THERAPEUTIC RESULTS WITH CONCENTRATED SCARLET FEVER ANTITOXIN"

To the Editor:—The discussion by Dr. George F. Dick of the paper by the Dicks on "Therapeutic Results with Concentrated Scarlet Fever Antitoxin" (THE JOURNAL, Nov. 28, 1925) followed a paper which I presented at the same meeting of the Section on Pharmacology and Therapeutics in Atlantic City last May. My paper has not yet been published and my discussion of Dr. Dick's paper was not included.

In the article entitled "Streptococcus Toxin in Preventive Immunization" (THE JOURNAL, Feb. 16, 1924), the Dicks reported typical moderate to severe scarlet fever-like symptoms following injections of large doses of the streptococcus toxin, symptoms exactly like those described by Gabritschewsky in the *Berliner klinische Wochenschrift,* May 6, 1907, after the use of his toxin-vaccine. At that time no other attempt was made by the Dicks to recommend any special dosage, and as I commenced my work with toxin immunization soon after the publication of their article, I took it for granted that we would have to avoid such constitutional reactions if we wished to have permission to carry out this work in the homes, in the public schools and in institutions. I therefore laid stress in my publications on the necessity of avoiding these reactions, and indicated that it would be better to commence with smaller doses and repeat the series of injections, if necessary, rather than arouse unnecessary opposition.

Concerning pseudoreactions, I was glad to note that Dr. Dick has finally accepted my finding that such reactions do come out with the scarlet fever test, although at first he denied their existence. It is probable that in the first series of tests I had made, some of the positive reactors were classified as combined reactors, owing to the fact that the toxin in the control had not been completely destroyed by boiling it for one hour in a water bath. The statement made by the Dicks in THE JOURNAL, Feb. 16, 1924, that "tests made with the material heated at 100 and at 90 C. were entirely negative" had completely misled me in regard to the effect of heat on the action of the filtrate.

In my paper at the Atlantic City session I did not state that Gabritschewsky standardized his vaccine according to its toxin content. The subject of standardization was not mentioned. I stated that the vaccine contained from 97 to 98 per cent by volume of toxin-containing broth, which no doubt from the publications of Gabritschewsky is absolutely correct.

It is rather interesting to note that the Dicks are beginning to acknowledge slowly and hesitatingly the priority of the work of Gabritschewsky and his associates on the streptococcus toxin and of Moser on streptococcus antitoxin. The clear cut statements of Savchenko, published in 1905, that he had identified through injections in horses a filtrable streptococcus toxin and produced with the filtrate a definite antitoxic serum, the Dicks still overlook or greatly minimize. This observer did not have the benefit of the knowledge elaborated during the past thirteen years with the Schick test in human beings; otherwise very little doubt remains that he would have applied such knowledge in the identification of the scarlet fever toxin. The toxin has no special pathogenic action on the usual laboratory animals, such as rabbits, guinea-pigs and mice, and it is through the use of such animals that filtrable toxins have heretofore been usually recognized. It is also significant that, in the concentration of the scarlatinal antitoxin the Dicks described and have been issued patent rights to a method used by Banzhaf for many years at the Research Laboratory in the concentration of diphtheria toxin.

A just and fairly complete review of the previous work is given by Dr. Park in his recent article on "Scarlet Fever," which appeared in THE JOURNAL, Oct. 17, 1925.

ABRAHAM ZINGHER, M.D., New York.
Assistant Director, Bureau of Laboratories,
New York City Department of Health.

THE BRITANNICA AND OSTEOPATHY

To the Editor:—Your London correspondent (THE JOURNAL, Dec. 12, 1925, p. 1901) complains of the new activities of osteopaths. Referring to a letter from the vice president of the British Osteopathic Association, published in the *Times*, he says that the writer "has the audacity to describe osteopathy as 'a system which has scientifically classified the entire field of mechanicotherapeutics' and refers to the manifesto of his association in which osteopathy is defined as 'that system of the art of healing which regards the structural integrity of the body as the most important single factor in the maintenance of health.'"

Perhaps your correspondent is unaware of the part played by the Encyclopaedia Britannica in the "sale" of osteopathy to the British public. The supplementary volumes of the eleventh edition, published in 1922, contain a long article, signed with the initials "G. W. Ri." The writer is George Washington Riley, Ph.B., D.O. A single sentence from the body of this article will serve as a specimen:

> Centuries old is the idea that man is a machine, and that his operations are dependent upon mechanical laws; but to Dr. A. T. Still is due the honour of recognizing the unity of the body and the law that any derangement of its mechanical structure is followed by disordered functioning or disease, and that the vital mechanism possesses the autoprotective power to restore normality of function, without pharmaceutical, chemical, electrical or any other extraneous and artificial stimulation, as soon as complete alignment and adjustment of such derangements have been made.

Since clear thinking, which is not a characteristic of osteopaths, is essential to lucidity in style, this sentence is, perhaps, the clearest brief résumé of osteopathy by an osteopath extant. Its protagonists, if no others, will encounter little difficulty in its interpretation and application. But what shall we say of great reference works which open their pages to the promoters of pseudomedical systems?

WILLIAM Y. WARD, M.D., Ivanhoe, Texas.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

PROBLEMS OF DIABETIC METABOLISM

To the Editor:—1. Is depletion of the hepatic glycogen store in insulin hypoglycemia due to the anoxemia attendant on the hypoglycemia? The liver is the main store of glycogen in the body and the sole organ in the body having the functions of endogenous formation of glucose from fat and amino-acids. The normal hepatic glycogen store contains only as much glucose as would meet the energetic glucose-oxidative requirements of the system for half an hour or so. Complete depletion of the hepatic glycogen store, however, is probably normally prevented by a mechanism that brings into play the hepatic function of endogenous glucose formation from fat and amino-acids as soon as the hepatic glycogen store commences to become depleted. Thus it is that an animal may be kept for weeks on a diet in which carbohydrate is practically absent without more than a comparatively slight depletion of its hepatic glycogen store, and that a small percentage (from 0.25 to 0.5) of glycogen persistently persists in the liver of an animal rendered glycosuric by excision of the pancreas. Endogenous formation of glucose from fat and amino-acids is an oxidative process and requires an adequate supply of oxygen to the liver cells. In insulin hypoglycemia we have an acute anoxemia which would inhibit this hepatic oxidative endogenous glucose formation. In insulin hypoglycemia, therefore, after the glucose stored up as glycogen in the muscles is used up, whatever glucose is used up in the system must come entirely from the hepatic glycogen store, which would therefore undergo a gradually increasing depletion till death.

2. Is there any support among physiologists to the theory that depletion of the hepatic glycogen store below a certain physiologic level stimulates the hepatic cells to endogenous glucose formation from fat and amino-acids, the stimulus to endogenous glucose formation being in proportion to the degree of depletion, and that saturation of the hepatic glycogen store above this physiologic level stimulates the liver cells to endogenous fat formation from the glucose? This theory would explain, for instance, why the hepatic glycogen store of an animal rendered glycosuric by pancreatectomy does not undergo rapid extinction, but that a small trace of glycogen persists in the liver cells for long periods in spite of the glycosuria. If this theory were correct, what would occur in a particular case during a period during which no exogenous glucose from the alimentary canal or by transfusion is entering the system, would be that the hepatic glycogen store would not undergo complete extinction, but would undergo depletion until the endogenous glucose formation stimulated by the depletion became equal to the synchronous oxidation of glucose in the tissues and the loss by glycosuria.

3. The hepatic cells contain an amylase ferment whose action is reversible; by dehydrolyzing free glucose it stores up glycogen, and by hydrolyzing stored up glycogen it liberates free glucose. Being a reversible chemical reaction, the action of this ferment always tends to come to an equilibrium point and in particular conditions of action at a certain concentration of free glucose in the liver cells the two reversible reactions would exactly balance each other. The concentration of free glucose in the liver cells always tends to approximate as close as possible the equilibrium concentration and may be therefore taken as equal to it. As the blood current comes in very intimate and extensive contact with the liver cells, there is freest diffusion of glucose between the liver cells and the blood. If the glucose concentration of the blood coming to the liver were less than the hepatic glucose equilibrium concentration, free glucose formed from glycogen, fat or amino-acid would diffuse from the liver cells into the blood stream till the hemic glucose concentration became equal to the hepatic equilibrium concentration; if greater, free glucose would diffuse from the blood stream into the liver cells, to be converted there either into glycogen or fat until the two concentrations became equal. The hepatic glucose equilibrium concentration tends to control therefore the hemic glucose concentration.

4. Is it possible that insulin causes hypoglycemia by increasing the speed of the glucose-into-glycogen reaction and diminishing the speed of the glycogen-into-glucose reaction of the hepatic amylase ferment, thus lowering the hepatic glucose equilibrium concentration?

SEBASTIAN L. RODRIGUEZ, M.B.B.S., Karachi, India.

ANSWER.—1. Apparently, depletion of the hepatic glycogen store in insulin hypoglycemia is not due to the anoxemia attendant on the hypoglycemia since hypoglycemia develops before anoxemia, and is the probable cause of it (*Am. J. Physiol.* **69**:142, 1924). When anoxemia is produced, it undoubtedly acts to increase the formation of blood sugar from the glycogen. Mann and McGath (*Am. J. Physiol.* **65**:403 [April] 1923) have shown that the presence of the liver is not necessary for the hypoglycemic action of insulin. Macleod (*Medicine* **3**:222, 1924) thinks that it is due to a stimulation of the glycogenic center by the low blood sugar level. He says, "When the blood sugar has declined to a certain level, the glycogenolytic function of this organ becomes stimulated, so that more glucose is discharged into the systemic blood to replace that which has been lost. This stimulation occurs through the nervous system, since Burn has found that when ergotamine is given along with insulin to well fed animals the blood sugar curve fails to recover and behaves like that of a starved animal. This alkaloid acts like ergotoxine in paralyzing the endings of the sympathetic (thoracic-autonomic) nerve supply. We must suppose, therefore, that the so-called glycogenic center becomes stimulated when the blood sugar reaches a certain low level."

2. Glucose and glycogen can be manufactured by the liver from protein, amino-acids, etc. Since it is a rule that chemical reactions take place more rapidly in the absence of a retarding product (glycogen and sugar), it is possible that a low glycogen content would stimulate glycogen and consequently sugar formation. We do not know, however, that this occurs, nor do we know that physiologists have expressed an opinion on this point. If such a reaction does occur, we might expect some evidence of the reverse condition, but Dudley and Marrian could find no evidence of a conversion of carbohydrate into fat in normal animals under the influence of insulin. Studies of the respiratory quotient under insulin give such variable results that they cannot be used in support of the theory.

3. It is possible that insulin causes hypoglycemia by increasing the speed of the glucose into glycogen reaction and by diminishing the speed of the glycogen into glucose reaction, thus lowering the hepatic equilibrium concentration, but, it is thought, improbable. Insulin in the normal animal causes hypoglycemia and also a lessening of the glycogen content of the liver, and, according to Macleod, insulin lessens glycogen formation. In the diabetic patient under certain conditions it not only aids sugar combustion but also causes a storage of glycogen.

4. As to whether insulin diminishes the speed of glycogen into glucose in the normal animal: the reverse is the case. Insulin causes the glycogen stores to become depleted because of the demand for glucose which it sets up (Dudley and Marrian: *Biochem. J.* **17,** 1923). In the diabetic patient, however, insulin apparently reduces the rate of glycogen to glucose, but the action of insulin on this reaction may be indirect. It has no action on glycolysis in vitro.

Since the mechanism of the action of insulin on carbohydrate metabolism is unknown, no theory should be discarded as worthless. We have endeavored to answer these questions on the basis of work already reported. This work may not in all cases be correct.

Macleod, in summing up the effect of insulin on normal animals, states that insulin causes glucose to be converted into some heretofore unrecognized substance, some substance that is not precipitated into glycogen, but which at the same time has lost its reducing properties. It has been suggested that the high respiratory quotients after insulin indicate that a fatlike substance is produced. In this connection it should be noted that Dudley and Marrian did not find the amount of fatty acid in the liver changed in normal mice following insulin.

DIPHTHERIA ANTITOXIN

To the Editor:—In THE JOURNAL, Jan. 8, 1921, page 109, Dr. W. H. Park says that a single dose of sufficient quantity is all that is required in any case and seldom in larger doses than 5,000 units for a child, which the table shows is the same treatment carried on in New York now. I do not understand why in our region they give a child 100,000 units and think nothing of repeating doses. Park also says that after the first dose is given, later injections, though not harmful, are useless; also that antitoxin remains in the body several days and that its highest antitoxin value is from twenty-four to seventy-two hours after the antitoxin globulin has been injected into the tissues. Farther on he says that the persistence of the antitoxin in the blood for a number of days is not grasped by most physicians. These, I am inclined to think, are the real reasons for such a variation, both as to mortality and as to the quantity of antitoxin. Is it true that antitoxin is made from one strain, or do the different states make their own? Where does New York get its supply, which has a low mortality, according to your statement (THE JOURNAL, Sept. 20, 1924, pp. 918 and 922). Does the Schick test have any bearing on the New York result?

GEORGE W. REESE, M.D., Shamokin, Pa.

ANSWER.—It is true that Park, in the article quoted, rightly insists that "the proper administration of antitoxin requires, therefore, that it be given so as to reach the toxin in sufficient amount at the earliest practical moment." He indicates what he considers a sufficient amount in various sorts of cases. His dosage varies greatly according to the severity of the case. He advises in children under 2 years of age from 2,000 to 10,000 units; in children from 2 to 15 years, from 3,000 to 20,000 units; in persons weighing more than 90 pounds (41 Kg.) from 3,000 to 50,000 units. The quotation as to repeated doses is inaccurate. What Park says is, "If the first dose is sufficient, later injections, though not harmful, are useless."

The determination of what is a sufficient dose in individual cases must be determined by the physician. He bases his conclusion on his clinical experience, taking into account the duration of the disease, the extent of involvement, and especially the degree of intoxication as evidenced by edematous swelling of the neck, acute nephritis, paleness, drowsiness and prostration. Even large clinical experience does not enable one to estimate with certainty in advance the amount of antitoxin needed by an individual case; and if the course of the disease indicates that the estimation has been too low, more must be administered subsequently. When a case is seen early, a single dose of a relatively small amount is often sufficient. Each case, however, should be watched, and if the disease progresses in spite of the primary dose, more must be administered. The large doses advised by many clinicians who have observed many cases in hospitals have been largely arrived at through repeated experiences like this. Patients who have been seen early by a physician who has administered from 3,000 to 5,000 units of antitoxin come into the hospital two or three days later with profound toxemia. The primary dose had been insufficient, the disease had progressed in spite of it, and any amount given after the longer interval might not be able to prevent death or late paralysis.

It is unfortunate that many physicians have received an incorrect impression from what Park has written. Perhaps he has not laid enough emphasis on the fact that sufficient antitoxin must be given at the earliest possible moment. Too many have wrongly concluded that one dose is always sufficient, which can only be the case if enough is given at the first injection.

Practically all the antitoxin used in this country is produced by immunizing horses with toxin produced by one strain of *Bacillus diphtheriae,* known as "Park 8." All antitoxin sold in interstate commerce is tested against a standard antitoxin furnished by the Hygienic Laboratory in Washington, and a unit in the serum of one manufacturer is the same as that in another.

Mortality statistics will vary with the type of disease prevalent at any time in the case of diphtheria, as in all infectious diseases, and variations in mortality must not be too implicitly credited to variations in procedure.

The Schick test can have no bearing on the New York results, except as it has led to the immunization of large numbers of children whose susceptibility to diphtheria has been determined by the test.

SKIN INOCULATION FOR RHEUMATISM

To the Editor:—Is there any truth in the following statement, which appeared in one of our local papers: "A method of skin inoculation as a cure for rheumatism is claimed to have been discovered by Dr. Gustav Paul, director of the state vaccination institute in Vienna. It is stated that the remedy has proved successful in over 600 cases and it is claimed that the cure is both simple and harmless." Can the remedy be had in this country?

H. S. ROBERTSON, M.D., Elmira, Texas.

ANSWER.—Dr. Paul is director of the state vaccination institute at Vienna, and his report on his successful application of the Ponndorf vaccination method of treatment to rheumatism was published in the *Wiener klinische Wochenschrift,* Sept. 3, 1925. It was briefly summarized in THE JOURNAL, Oct. 17, 1925, p. 1265. He stated that he had had nearly 600 cases of rheumatism under his personal observation and treatment with vaccine in the last four years, and 342 had completed the course. "It was originally designed for treatment of tuberculosis, but it has proved a new and important means for treating all kinds of chronic disturbances in metabolism and nutrition—consequences of rheumatismal infection. . . . The Ponndorf vaccine consists of concentrated old tuberculin with empiric addition of autolyzed human and bovine tubercle bacilli. For mixed infection and in nontuberculous affections, autolysates of staphylococci, streptococci, pneumococci and other germs are added to the first vaccine. There does not seem to be any essential difference between the two. . . . The prognosis is more favorable when the local and the focal reactions are pronounced, with little or no general reaction. . . . The reaction to the gentle scarifications, not drawing blood, is the guide for the quantity of the vaccine to use. The waste products in the local reaction blend with the proteins in the vaccine to exert a really wonderful action from this vaccination of the skin in all forms of chronic rheumatism and gout." The Ponndorf method has been repeatedly mentioned in THE JOURNAL; for example, May 13, 1922, p. 1502, and Jan. 14, 1922, p. 154. The latest abstract on the subject is of Paul's article, and states that he "obtained perfect cures in 64 per cent and noticeable improvement in 30 per cent." Further details gleaned from Paul's article are that the cure was complete in 77 per cent of his forty-five cases of sciatica; 59 per cent in thirty-two of neuralgia; 73 per cent in twenty-six cases of muscular rheumatism, and 31.4 per cent in thirty-five cases of arthritis deformans. The other 257 cases are still under treatment.

KLIEG EYES

To the Editor:—A particular method for preventing Klieg eyes, so called, produced by intense light in motion picture studios, has been referred to us by the Association for the Preservation of Eyesight. This method uses a certain kind of colored screens to subdue and filter out the ultraviolet rays. We are interested in a further inyestigation of this subject in order to determine, if possible, to what extent careless using of intense light in motion picture studios is really responsible for Klieg eyes. I believe that Klieg eyes has been defined in the medical dictionary as being an inflammation of the inner membrane or conjunctiva of the eye. Dr. Romeo Roberto of Yonkers, N. Y., has suggested to me that possibly you may have available data giving the number of cases of Klieg eyes caused by intense light in motion picture studios in the United States which required medical treatment during a period, say, of one year. If you do not have this information, possibly you could suggest where it could be obtained.

J. M. JOY, New York.
Electrical Engineer.

ANSWER.—As far as can be ascertained, there has been no compilation of the number of cases of Klieg eyes that occur annually, nor is it known how many cases required treatment

over a long period of time. Such data could be ascertained best by a questionnaire sent to the various moving picture studios. As far as is known at present, Klieg eyes result from exposure to ultraviolet rays in quantity. These rays vary in length from 396 millimicrons down, and the truly injurious effects do not begin to appear until the waves become shorter than 310 millimicrons. It is an extremely simple matter to filter out such rays without diminishing the total intensity of the light to an appreciable extent.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

ALABAMA: Montgomery, Jan. 12. Chairman, Dr. S. W. Welch, Montgomery.

ALASKA: Juneau, March 2. Sec., Dr. Harry C. De Vighne, Juneau.

CONNECTICUT: New Haven, Feb. 13. *Basic Sciences.* Chairman, Charles M. Bakewell, Box 1895, Yale Station, New Haven.

DISTRICT OF COLUMBIA: Jan. 12. Sec., Dr. Edgar P. Copeland, Apt. 104, Stoneleigh Court, Washington, D. C.

HAWAII: Honolulu, Jan. 11. Sec., Dr. G. C. Milnor, 401 So. Beretania St., Honolulu.

ILLINOIS: Chicago, Jan. 19-21. Supt. of Reg., Mr. V. C. Michels, Springfield, Ill.

INDIANA: Indianapolis, Jan. 12. Sec., Dr. W. T. Gott, 421 State House, Indianapolis.

KANSAS: Topeka, Feb. 9. Sec., Dr. Albert S. Ross, Sabetha.

MINNESOTA: Minneapolis, Jan. 5-7. Sec., Dr. Thomas S. McDavitt, 734 Lowry Bldg., St. Paul.

NATIONAL BOARD OF MEDICAL EXAMINERS: Part I, Feb. 10-12; Part II, Feb. 11-12, in Class A Medical Schools. All applications must be received on or before Jan. 15. Sec., Dr. J. S. Rodman, 1600 Walnut St., Philadelphia.

NEW YORK: Albany, Buffalo, New York, Syracuse, Jan. 25-28. Chief, Mr. Herbert J. Hamilton, Department of Education, Albany.

PENNSYLVANIA: Philadelphia, Jan. 26-30. Act. Sec., Mr. C. D. Koch, Harrisburg.

PHILIPPINE ISLANDS: Manila, Feb. 9. Sec., Dr. Jose V. Gloria, 686 Rizal Ave., Manila.

PORTO RICO: San Juan, March 2. Sec., Dr. D. Biascoechea, Box 804, San Juan.

SOUTH DAKOTA: Pierre, Jan. 19. Dir. Med. Licensure, Dr. H. R. Kenaston, Bonesteel, S. D.

VERMONT: Burlington, Feb. 9-11. Sec., Dr. W. Scott Nay, Underhill.

WASHINGTON: Olympia, Jan. 12. Sec., Mr. William Melville, 15 Insurance Bldg., Olympia.

WEST VIRGINIA: Charleston, Jan. 19. Sec., Dr. W. T. Henshaw, State Health Department, Charleston.

WISCONSIN: Madison, Jan. 12-14. Sec., Dr. Robert E. Flynn, 315 State Bank Bldg., La Crosse.

WYOMING: Cheyenne, Feb. 1-3. Sec., Dr. G. M. Anderson, Cheyenne.

Illinois October Examination

Mr. V. C. Michels, superintendent of Registration, Illinois Department of Registration and Education, reports the written and practical examination held at Chicago, Oct. 6-8, 1925. The examination covered 10 subjects and included 100 questions. An average of 75 per cent was required to pass. Of the 70 candidates examined, 60 passed and 10 failed. Nineteen were licensed by reciprocity, and 1 by endorsement of his credentials. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent
Georgetown University School of Medicine		(1896)	75
Emory University School of Medicine		(1924)	87
Chicago Medical School		(1923) 77, (1924)	76
General Medical College		(1924) 75, 76, 79,	80, 80
Loyola University School of Medicine		(1925)	78
Northwestern University Medical School		(1925) 79, 79, 80,	82, 83
Rush Medical College		(1924) 82, (1925) 79, 79, 80, 83, 83, 83, 84, 84, 85, 85, 85, 86, 87, 87, 89	
University of Illinois College of Med.		(1925) 80, 81, 81, 81,	86, 89
Indiana University School of Medicine		(1924)	78
State University of Iowa College of Medicine		(1924)	88
University of Louisville School of Medicine		(1924)	84
Eclectic Medical University, Kansas City		(1917)	79
St. Louis University School of Medicine		(1923) (1924) 75, 78, 81, 84, 85, (1925) 79	82,
University Medical College of Kansas City		(1911)	79
Washington University School of Medicine		(1921) 82, (1924)	80
Syracuse University College of Medicine		(1923)	87
University of Cincinnati College of Medicine		(1924)	76
University of Pennsylvania School of Medicine		(1924)	85
Marquette University School of Medicine		(1925)	85
University of Toronto Faculty of Medicine		(1923)	87
University of Copenhagen, Denmark		(1924)*	78
University of Naples, Italy		(1923)*	80
University of Odessa, Russia		(1918)*	79
University of Saratov, Russia		(1916)*	76

College	FAILED	Year Grad.	Per Cent
Chicago Medical School		(1923)	†
College of Med. and Surgery, Physio-Medical Chicago		(1911)	76‡
Meharry Medical College		(1914) 39, (1923)	62
University of Western Ontario Medical School		(1913)	78‡
University of Berlin, Germany		(1923)*	72
University of Naples, Italy		(1915)* 68, (1920, 2)* 69,	69
University of Palermo, Italy		(1923)*	†

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Chicago College of Medicine and Surgery		(1914) (1917)	Nebraska
College of Physicians and Surgeons, Chicago		(1902)	Montana
Indiana University School of Medicine		(1909)	Indiana
State University of Iowa College of Medicine		(1907), (1910)	Iowa
Kentucky School of Medicine		(1894)	Indiana
University of Louisville School of Medicine		(1921), (1922)	Kentucky
University of Michigan Medical School		(1921)	Michigan
University of Minnesota Medical School		(1916)	Minnesota
Washington University School of Medicine		(1923)	Kansas
Medical College of Ohio, Cincinnati		(1908)	Ohio
University of Oklahoma School of Medicine		(1918)	Oklahoma
Meharry Medical College		(1905), (1911), (1919) (1917) Kentucky, (1918) Texas	Arkansas

College	ENDORSEMENT OF CREDENTIALS	Year Grad.	Endorsement with
University of Kansas School of Medicine		(1915)	U. S. Army

* Verification of graduation by the American Medical Association still incomplete.

† No grade given.

‡ Fell below 75 per cent in one or more subjects.

District of Columbia October Examination

Dr. Edgar P. Copeland, secretary of the Board of Medical Supervisors of the District of Columbia, reports the oral and written examination held at Washington, D. C., Oct. 13-15, 1925. The examination covered 8 subjects and included 80 questions. An average of 75 per cent was required to pass. Twenty-eight candidates were examined, and all of them passed. One candidate was licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent
Yale University School of Medicine		(1924)	85.8
Georgetown University School of Medicine		(1922) (1925) 82.7, 86.2, 88.9, 90.8	87.3,
George Washington University Medical School		(1925) 81.2, 85.4, 85.8, 86.1, 86.6, 87.7	78.7,
Howard University School of Medicine		(1925) 75.3, 79.6, 80.3, 80.8, 84.6, 87.2	75.2,
Rush Medical College		(1925)	87.9
Johns Hopkins University Medical Department		(1925)	87.8
Tufts College Medical School		(1922)	85.9
Washington University School of Medicine		(1925)	85.4
Creighton Medical College		(1925)	78.1
New York Homeo. Med. Coll. and Flower Hosp		(1925)	86.3
Medical College of Virginia		(1917)	78
University of Virginia Department of Medicine		(1923)	91.8

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Bellevue Hospital Medical College		(1897)	N. Carolina

Kentucky June Examination

Dr. A. T. McCormack, secretary of the Board of Health of Kentucky, reports the written examination held at Louisville, June 9-11, 1925. The examination covered 10 subjects and included 110 questions. An average of 75 per cent was required to pass. Of the 51 candidates examined, 49, including 1 undergraduate, passed, and 2 failed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent
University of Louisville, School of Med.		(1923) 88, (1925) 82, 83, 83, 84, 85, 85, 85, 85, 85, 85, 86, 86, 86, 86, 87, 87, 87, 87, 87, 87, 87, 87, 88, 88, 88, 88, 88, 88, 88, 89, 89, 89, 89, 89, 90, 90, 90, 90, 91, 91, 92	80, 80,
Eclectic Medical College, Cincinnati		(1925)	88
Medical College of the State of South Carolina		(1925)	86
University of Palermo, Italy		(1922)*	80
Undergraduate			75

College	FAILED	Year Grad.	Per Cent
College of Physicians and Surgeons of St. Joseph		(1920)	67
University of Naples		(1921)*	68

* Verification of graduation by the American Medical Association still incomplete.

Book Notices

MODERN SURGERY, GENERAL AND OPERATIVE. By John Chalmers DaCosta, M.D., LL.D., F.A.C.S., Samuel D. Gross Professor of Surgery, Jefferson Medical College, Philadelphia. Ninth edition. Cloth. Price, $10. Pp. 1527, with 1,200 illustrations. Philadelphia: W. B. Saunders Company, 1925.

This edition might almost be considered a new book, for so much new matter has been added and so many changes have been made that it was necessary to reset the type and to make the pages slightly wider and longer. The author has omitted certain chapters which he believed were necessary years ago, but which no longer find a place in books such as this. These include the chapters on surgical bacteriology, asepsis and antisepsis, and bandaging. Among the many important additions are a discussion of Buerger's disease, a new chapter on electrothermic methods of treating neoplasms, and a new section on radium. Many chapters have been rewritten, such as those dealing with tuberculosis, shock, syphilis, blood transfusion, fractures and dislocations, surgery of the respiratory organs, hernia, Coffey's operations for carcinoma of the rectum, anesthesia, goiter and roentgenotherapy. As was characteristic of the former editions, the work is intensely practical. Surgical diagnosis is presented in a clear and definite manner, and the indications for both medical and operative treatment are explained. Medical and operative treatment is discussed concisely but clearly and at sufficient length to be of value in the handling of patients in one's daily practice. The author has made a great many quotations, giving credit whenever possible. This greatly enhances the value of the book for both students and practitioners. The author expresses his opinion clearly and points out when his judgment differs with that of other surgeons of experience. He is modest in not insisting on his judgment, but is firm in his convictions. In not a few instances other surgeons of equal experience certainly will not agree with him, but on the whole his advice is excellent and can be followed as authority. The work will stand as a monument to the author, who, unfortunately, has been prevented from carrying on his operative work by a painful and prolonged illness.

DIE CHIRURGIE. Eine zusammenfassende Darstellung der allgemeinen und der speziellen Chirurgie unter Mitarbeit hervorragender Fachmänner. Herausgegeben von Prof. Dr. M. Kirschner und Prof. Dr. O. Nordmann. Lieferung 4. Band 1. Die allgemeine Lehre von den Verletzungen und den Wunden. Von Prof. Dr. Fr. Lotsch. Die Lehre von den Ersatzgliedern. Von Reg.-Med.-Rat. Dr. M. Böhm. Paper. Price, 12 marks. Pp. 397-638, with 220 illustrations. Berlin: Urban & Schwarzenberg, 1925.

The subjects covered in this volume of the fourth supplement are wounds and artificial limbs. The subject of wounds includes the bacteriology, pathologic changes and treatment of all types. Great emphasis is laid on amputation, and a large proportion of the space is devoted to the technic of various operations. More space might well have been devoted to the nonamputation treatment. The sterilization of wounds, although apparently deemed possible by the author, is scarcely mentioned. The chapters on artificial limbs are excellent.

FEEDING AND THE NUTRITIONAL DISORDERS IN INFANCY AND CHILDHOOD. By Julius H. Hess, M.D., Professor and Head of the Department of Pediatrics, University of Illinois College of Medicine. Fourth edition. Cloth. Price, $4.50. Pp. 556, with 43 illustrations. Philadelphia: F. A. Davis Company, 1925.

This is a clear and practical statement on the feeding of infants. Scientific reasons for statements made are given, down to p_H's and fractions; but they do not interfere when the physician is pressed for time. He can get the information he wants usually without recourse to the excellent index; for chapters and paragraphs are not too long, sentence structure is sometimes sacrificed to incisiveness, and purposeful repetition of important material makes memorable its location in the book. Facts themselves are made impressive; for instance, although percentages of various components in different milks are tabulated, the text states also that "there is three times as much protein in cow's milk as in human milk." The early chapters take up anatomy, physiology, bacteriology, breast feeding, mixed feeding, feeding of premature infants and artificial feeding, with food tables and specimen diets for infants of different ages. Midway of the book are presented nutritional disturbances with and without diarrhea, athrepsia, anhydremia, infection and celiac disease. The closing chapters are excellent articles on rickets, tetany, scurvy, acidosis and the anemias of infancy. The appendix is a manual of foods and how to make them, infant care and how to go about it, tables of average infant development and model charts. The avowed purpose of the work, "to place in the hands of teachers and students a manual on infant feeding and the nutritional disorders, to be used in preparation for clinical conferences," has resulted, also, in a compact volume that the general practitioner as well as the specialist will welcome.

TEXT-BOOK OF NERVOUS DISEASES. For the Use of Students and Practitioners of Medicine. By Charles L. Dana, A.M., M.D., LL.D., Professor of Nervous Diseases in Cornell University Medical College. Tenth edition. Cloth. Price, $7. Pp. 667, with 262 illustrations. New York: William Wood & Co., 1925.

When a textbook on nervous diseases appears in its tenth edition, the mere statement of that fact suffices to show that it meets the demands of a large number of readers. Since the author is not only a learned and able neurologist but also a man of unusual literary taste and ability, it is not surprising that the reader is introduced to the subject by way of a personality sketch of an ideal neurologist, a chapter on the history of neurology by Fielding H. Garrison, and one on preventive neurology. Anatomy and physiology are considered in their most essential features, and largely by means of excellent schematic drawings and tables. Throughout the book are excellent illustrations of gross lesions and the external appearance of patients; the style of presentation is uniformly clear. New subjects are given special consideration in this edition; for instance, there is a chapter on epidemic encephalitis by Thomas K. Davis. Aside from this chapter and the one by Garrison, the book has the strength and weakness of a one man book covering a wide subject. Neurology, even without psychiatry, is too big to enable any man to have first hand knowledge of every phase of it or to select for a book of a given size that which is most essential and most strictly up to date on every single subject. There are minor omissions, for instance, in regard to modern tests for spinal block and cisternal puncture, but we will forgive this as there are excellent illustrations of the appearance of air in the cerebral ventricles. The functional nervous diseases are treated with a brevity which probably indicates that the author is more interested in the organic field.

PSYCHOANALYSIS AND THE PSYCHIC DISORDER OF GENERAL PARESIS. By Stefan Hollós and S. Ferenczi. Authorized English by Gertrude M. Barnes and Günther Keil. Nervous and Mental Disease Monograph Series No. 42. Boards. Price, $1.50. Pp. 48. New York: Nervous and Mental Disease Publishing Company, 1925.

In the first part of this excellent monograph, Hollós discusses some of the literature relating to the psychic symptoms of general paresis. He presents clinical material, one case in detail and evidence from several others, to determine whether psychanalysis can be of use in making some of the symptoms of paresis intelligible and to see whether these interpretations correspond to the results obtained by psychanalytic investigation of the neuroses and psychoses. Ferenczi takes up the theoretical consideration of this problem. He does not overlook nor does he underestimate the fact that some psychic dysfunctions in paresis are the result of defects in somatic processes, but he considers at least part of the psychic symptoms as a neurotic reaction following injury to the brain or its function; namely, a "cerebral pathoneurosis." Expressed in psychanalytic terms, "part of the symptomatology of paresis corresponds to a physical dominance over the narcisistic libido dynamics mobilized through cerebral lesions." The regression of the ego in the various stages of paresis is then followed, and Ferenczi demonstrates that this regression takes place exactly as in the neuroses and psychoses, from higher stages of ego development downward. The entire subject might have been presented by the authors in more detail, but even with the material presented one may visualize the possibilities of

psychanalysis in the field of organic psychiatry. No one can doubt the sincerity of the scientific attitude of both writers. This monograph deserves careful reading not only by the neuropsychiatrist and psychologist but by every physician. The translation is excellent.

METHODS AND PROBLEMS OF MEDICAL EDUCATION (Third Series). Paper. Pp. 242. New York: The Rockefeller Foundation, 1925.

This deals mainly with the subjects of anatomy, histology, physiologic chemistry and pharmacology, and one article each on obstetrics, gynecology and surgery. There are nineteen articles by authors of medicine who are professors in twelve of the leading universities of the United States and other countries. The reports are illustrated by building and floor plans of various laboratories, and other illustrations showing their equipment. From this report one can obtain an excellent comparative idea of the special laboratories in the various universities represented. It is of much value to officers of medical schools in which the erection of new medical buildings is contemplated.

Miscellany

FIRST INTERNATIONAL MALARIAL CONGRESS

The prime minister, Benito Mussolini, officially opened the First International Malaria Congress in the council chamber of the capitol at Rome, Oct. 4, 1925. The president of the congress, Senator Marchiafava, in welcoming the delegates, reviewed the development of research. The first scientific meeting was in homage to the memory of Laveran, and a French delegate was requested to preside. Professor Marchoux then read a paper on "Unity or Plurality of the Parasites." He said that the zygotes are different in the mosquitoes, that the time of evolution varied, and if mosquitoes were fed on carriers of one form, the same type of malaria is invariably transmitted to healthy subjects; benign tertian malaria alone causes splenomegaly, and the lesions generally differ according to the type of the parasite. Professor Mühlens of Hamburg said that he had made seventy transmissions with the benign tertian parasite without any change. Professor Brumpt of Paris cited observations made by Professor Darling in the Far East, and concluded that the three forms of parasite are distinct.

Professor Marie of Paris read a paper on "Malaria Therapy in Psychiatry"; Wagner-Jauregg, who first published his results with this treatment in 1913, experimented with peptone, tuberculin and other substances, but returned to the use of malaria in 1917, and established the technic now widely employed. The results in various countries show, said Professor Marie, that while paresis is not cured, stabilization takes place, so that readaptation to family life and social responsibilities is possible; the remissions seem to be from 30 to 50 per cent. of the cases treated. Malaria parasites are used in syphilis, also, to aid the action of therapy in the secondary stage; it is hoped in this way to arrest the changes that may have just begun in the central nervous system. Malaria parasites have been employed in dementia praecox, epilepsy, and in some cases of epidemic encephalitis. Professor Marie criticized the views of those who withhold this remedy in cases which are not clear-cut as to their nature, considering it better to act too early than too late; what we lack most of all, he said, is an early diagnostic sign of incipient general paralysis. In the discussion, Professor Mühlens said that among several hundred inoculations with parasites, using all three types of malaria and the spirillum of relapsing fever (in selected cases not too far advanced), 50 per cent. had been able to resume their occupation, and that when using the benign tertian parasite, there had been no deaths. Colonel James of Great Britain said that since one could never eliminate by the blood method the risk of injecting two kinds of parasites at the same time, it had been decided to inoculate only by means of mosquitoes, and that stocks of infected anopheles are distributed to those who need them. The results in more than a hundred cases appear to be better than when the blood method is used.

Dr. Perez, minister from Argentina to Italy, proposed that a permanent international malaria institute be created at Rome with the scientific and financial help of all nations. Senator Marchiafava stated that Italy is ready to give support to this new institution. The proposal was referred to the council.

In his paper on "Complement in Malaria," Professor Neri of Cagliari reported on thirty chronic cases in which he observed that in nearly all there was a diminution of complement, amounting to its practical disappearance. This may explain active schizogenesis without clinical relapse, and the absence of anaphylactic shock; it may also explain the predisposition of chronic malaria patients to other maladies. Professor Dürck of Munich gave an illustrated lecture dealing with changes in the central nervous system in fatal cases of subtertian malaria. He said that the perivascular nodules found in malaria, typhus, epidemic encephalitis and pernicious anemia should be considered a defensive mechanism of the most perfect type by which the patient constructs a wall of cells around the destructive agent introduced into the circulation. Professor Bignami of Rome, in his paper on the "Pathology of Malaria," considered that the pathologic changes produced in the central nervous system in malaria were degenerative and proliferative but never inflammatory.

Dr. Carlos Chagas presided at the morning session, October 5, which was devoted to "Anopheles and Malaria; Epidemiologic Factors and Antilarva Measures." Dr. Sella reviewed the use of fish in antimosquito work since the introduction into Italy from the United States of *Gambusia affinis* in 1922; he was enthusiastic as to the future of this measure. Professor Mühlens stated that experiments in Argentina showed that the plant *Azolla filiculoida* deters the growth of mosquito larvae. Dr. Sella said that this plant does not grow when transplanted in Italy. Dr. Buen of Spain said that they have used *Gambusia* with success since 1921 in artificial ponds, and that their efficiency depends more on the number of fish present than on the density of the herbage; he was convinced that they were getting far better control at less cost by this method than with petroleum. Dr. Broden of Brussels said that the prophylactic use of quinin among natives in the tropics was unsatisfactory, and that the best method was to treat established cases efficiently.

At the afternoon session, Professor Gosio of Rome read a paper on the "Necessity for Increase and Coordination of Antimalarial Services." The most urgent problem is the supply of quinin, which should be ten times what it is and amount to 100 gm. for every person exposed to risk. Dr. Barber of the U. S. Public Health Service reviewed his work on "Paris Green as a Larvicide." Paris green may be applied through the entire season without harmful effect, and is employed diluted with 100 parts of dust as a suitable vehicle for wind conveyance over marshes; it has been distributed from airplanes. Paris green does not affect the pupae, but can affect the larvae of *culex* species under certain conditions. Dr. Hackett, director of the Rockefeller Foundation Work in Italy, said that a reduction of anopheles in trials made in Italy from 78.5 per cent. to 99 per cent. had been obtained under conditions in which petroleum could not be used; the United States has introduced a legal standard in which the Paris green must contain 50 per cent. of arsenous oxid. Among other papers was that of Dr. Chagas of Brazil on "The House—the Chief Place of Malarial Infection"; Dr. Kaufmann of Switzerland, on "The Synthesis of Cinchona Alkaloids," and Colonel James and Dr. Dale of Great Britain, on "Relative Therapeutic Efficacy of Quinin, Quinidin and Cinchonin in Malaria." Professor Ascoli of Rome, in a paper on the "Specific Treatment of Malaria," concluded that quinin would overcome all kinds of malarial fever, but that we are not justified in denying its antiparasitic properties; its effects vary with the dosage and with the stage in the life cycle of the parasite; in primitive malaria, quinin is supreme; the malignant form requires a greater concentration, but he has never found that malaria resists quinin; neo-arsphenamin and stovarsol are useful in benign tertian, but quinin remains "the queen of all specific remedies in malaria."

IRON AND STEEL ACCIDENTS

Industrial surgeons and safety experts will be interested in the preliminary brief report of the trend of accident rates in the iron and steel industry recently published by the United States Department of Labor (Chaney, L. W.: Industrial Accidents and Hygiene: Monthly Labor Review, Bureau of Labor Statistics, U. S. Depart. of Labor **21**:142 [Dec.] 1925). The year 1924 marks the close of the third five year period wherein it has been possible to compile the exposure and the accompanying accidents for practically the entire iron and steel industry. For all departments, the total of accident frequency rates per million hours' exposure for the period 1910-1914 was 59.2; for 1920-1924, 33.6. Computed in the same way, and representing the same periods, the frequency of death has dropped from 0.4 to 0.2; permanent disability, from 1.3 to 0.9; temporary disability, from 57.5 to 32.5. Puddling mills and forge shops are the two departments of the entire industry which show an increase in total accident frequency when a comparison is made between the first and the last of the five year periods for which the rates have been computed.

Accident severity rates, computed per thousand hours of exposure, have likewise shown a downward trend. For all departments the total severity rate for the period 1910-1914 was 4.1; for 1920-1924, 2.8. Ascertained in the same way and representing the same periods, the frequency of death has dropped from 2.3 to 1.5; permanent disability from 1.1 to 0.8; temporary disability from 0.7 to 0.5.

Medicolegal

Testimony Required as to Injury Causing Disease

(McCrosson v. Philadelphia Rapid Transit Co. (Pa.), 129 Atl. 4, 568)

The Supreme Court of Pennsylvania, in reversing a judgment for damages that was rendered in favor of the plaintiff, says that some seven weeks after the accident attributable to the defendant's negligence, in which accident the plaintiff sustained personal injuries, the plaintiff became sick with lobar pneumonia and was taken to a hospital for treatment. A physician who testified for the plaintiff declared that he could not say that the injury caused the pneumonia; but he said that, from the results of the plaintiff's injury, of course, her general system would be run down and make her perhaps more susceptible to pneumonia. It was resistance lessened. She was more susceptible to the pneumonia from having had this accident. On the point under consideration there was no other evidence of equal probative value with that physician's. It would have justified the trial judge in saying to the jury that, if they believed it, they would be entitled to give due consideration to it, with respect to the general effect of the accident on the plaintiff's health, and, perhaps, on her earning power also; but it did not justify proof regarding the pneumonia, nor the submission of its effect or expense, as distinct items of damage, since it wholly failed to show with reasonable certainty that the disease was caused by the injury received.

Where the connection, if any, between an injury and a subsequent disease must be shown by medical testimony, the "reasonable certainty" required to be established is exactly the same test as specified in *Fink* v. *Sheldon Axle & Spring Company*, 270 Pa. 476, 113 Atl. 666, and the cases in its train; that is, when "expert testimony is relied on to show the connection between an alleged cause and a certain result, it is not enough for the doctors to say simply that the ailment in question might have resulted from the assigned cause, or that the one could have brought about the other; they must go further and testify at least that, taking into consideration all the attending data, it is their professional opinion the result in question most probably came from the cause alleged." Judging from some of the records which have reached this court since that case was decided, even this plain and easily understood language (based on the essential rule of law that no one can be held liable to answer in damages for that which is not proved to have been caused by him) has been frequently misunderstood. This court did not say the evidence must show that the "result in question most probably (might have come) from the cause alleged" but that "most probably (it actually) came from" it. What this court said required the expert to testify, if recovery was to be allowed, that in his "professional opinion the result in question (did) come from the cause alleged"; and hence, in order to avoid further misapprehension, this court now announces that hereafter no consideration will be given to expert testimony on this point, unless it is as explicit as the court has stated. Of course, human frailty prevents absolute certainty in this class of cases; but, if one having special knowledge on the subject cannot, in conscience, say that in his "professional opinion the result in question did not come from the cause alleged," there is in fact nothing in the evidence from which a jury, having no such knowledge, could possibly find that it did. That was the exact situation in the instant case, so far as concerned the attack of pneumonia.

Insufficient Foundation for Action for Malpractice

(Gramaldi v. Zeglio et al. (N. J.), 129 Atl. R. 475)

The Supreme Court of New Jersey says that while the plaintiff was attempting to crank an automobile the crank flew back, striking his wrist and breaking the bones above it. He was taken to a hospital, where he was received by two interns who, he contended, caused a simple fracture to result in a compound one, which they diagnosed the injury as being. The interns could not reach the visiting surgeon, but got his assistant and with the latter dressed the wound and slipped the bones back into place. The visiting surgeon saw the plaintiff the next day and had the case for three weeks. On the third day after the accident, there was pus mixed with the exuding serum, but three days later the temperature became normal and continued so for the remainder of the three weeks. Later, osteomyelitis developed, which resulted in the loss of the use of the arm, and the plaintiff subsequently instituted this action for malpractice against the visiting surgeon and the two interns. At the conclusion of the testimony, motions were made in behalf of all the defendants to direct a verdict in their favor. That motion was denied as to the interns, but granted as to the visiting surgeon. With the propriety of the ruling as to the interns, this court had nothing to do, as it was not before the court; but the question of the correctness of the ruling as to the visiting surgeon was before the court, and it holds that the ruling was right.

The testimony in its most favorable aspect for the plaintiff failed to show, in this court's opinion, that the visiting surgeon did any negligent act which caused the infection. The testimony showed that treatment of an infected arm by drainage, as was done in this case, was a well recognized and standard form of treatment. The fact that the plaintiff introduced evidence of physicians and surgeons that they would have made incisions in the arm which would have laid it open from the wrist to the elbow was not evidence of malpractice. Surgeons of eminence frequently differ in their opinions as to the treatment to be used in a given case. To permit a jury to pass on the question of malpractice because testimony is given by physicians that they would have used a different treatment from the one prescribed or followed would be to make a physician or surgeon a guarantor of the success of his treatment in every case. If he fails to restore his patient, he must face a lawsuit, with its accompanying annoyances and expenses. If the plaintiff's position was sound, a jury must pass on the question whether the treatment given was correct or not. As the plaintiff did not respond to the treatment given and his arm did not become restored to its condition prior to the fracture, it could be expected that a jury would reach the conclusion that some other treatment of the condition which arose should have been applied. The result would be to return a verdict for the plaintiff, notwithstanding the fact that the same infection might have followed the other kind of treatment. If such were the law, there would be few physicians and surgeons who would undertake

to treat a case, for every failure to effect a cure would lay the basis for a lawsuit.

It takes more than the opinion of one or more physicians or surgeons that the treatment followed in a given case should have been different to lay a foundation for malpractice. A case of malpractice cannot be proved by the testimony of a few physicians or surgeons that they would have used some other treatment than the one used, in the absence of testimony from which it can be inferred that the defendant failed to give to the case that skill and care ordinarily possessed and exercised by others in the profession. The skill and care a physician is required to give a patient is that ordinarily possessed and exercised by others in the profession. A physician is not a guarantor without express contract of the good effects of his treatment, and he undertakes to do only what can ordinarily be done under similar circumstances.

Testimony Concerning Roentgenogram Permitted

(Mercado v. Nelson (Kan.), 235 Pac. R. 123)

The Supreme Court of Kansas says that, in this action to recover damages for personal injuries, complaint was made that a physician and surgeon who had treated the plaintiff testified concerning a roentgenogram of the plaintiff's injuries. The picture had been taken by another person, who was not produced as a witness, but it had been taken on the order of the witness who was testifying. The objection was that no foundation had been laid for the introduction of the picture. However, in the opinion of the court, there was no reversible error committed in the admission of evidence.

How the Reasonable Value of Services Is Proved

(Maryland Casualty Co. v. Sweek (Ariz.), 236 Pac. R. 720)

The Supreme Court of Arizona, in affirming a judgment for $400 in favor of plaintiff Sweek and against the defendant company, says that he brought suit against the company and one Hamm for professional services alleged to have been rendered Hamm at the special instance and request of both defendants, for which they promised to pay the reasonable value of such services, which the plaintiff alleged to be $474. The company answered that it did authorize the plaintiff to perform an operation on Hamm and agreed to pay for it $150, for which sum the plaintiff agreed to perform the operation; that the company denied that it requested or authorized any other or future services to be rendered by the plaintiff for Hamm. A jury returned a verdict of $400 in favor of the plaintiff. As the evidence was conflicting, the verdict of the jury was conclusive as to the weight and sufficiency of the evidence. It was clearly error, however, to allow the testimony of a physician on direct examination, as to what he charged for similar operations, to stand. Reasonable value is proved by the general customary charges for similar services, and not by what some particular person charges; and the witness stated that he did not know the general custom. But, should the case be reversed for this reason? Appellate courts are becoming more and more reluctant, and this court thinks properly, to reverse a case for error in procedure, which did not affect the result. If the evidence as to the value of the services had been in conflict, this court might assume that the error complained of had some effect, but none of the witnesses fixed the value of the services at less than the amount of the verdict, while some of them were considerably higher; and this physician's figure was the highest of all, but the jury did not accept it. Under these circumstances this court does not think that the erroneous admission of the testimony affected the result, and does not think that the error was of sufficient gravity to warrant a reversal of the judgment. The case was tried on the issue of whether or not there was a specific agreement for a definite sum to be paid. So far as the extent of services was concerned, the only witness for the defendant company stated, "I expect a physician should treat a man for what is wrong with him." The jury, on a direct conflict of evidence and on instructions which placed that issue clearly before it, found that there was no agreement as to the price. The plaintiff was therefore entitled to recover on a quantum meruit (the reasonable value of his services).

Society Proceedings

COMING MEETINGS

American College of Physicians, Detroit, Feb. 22-29. Dr. Frank Smithies, 920 N. Michigan Ave., Chicago, Secretary.
American Congress on Internal Medicine, Detroit-Ann Arbor, Feb. 22-29. Dr. Frank Smithies, 920 N. Michigan Ave., Chicago, Secretary.
Isthmian Canal Zone, Medical Association of, Ancon, Jan. 19. Dr. David L. Robeson, Ancon Hospital, Ancon, Secretary.
Sioux Valley Medical Association, Sioux City, Iowa, Jan. 19-20. Dr. R. F. Bellaire, Trimble Block, Sioux City, Secretary.

CONFERENCE ON PERIODIC HEALTH EXAMINATIONS OF APPARENTLY HEALTHY PERSONS

Held at Headquarters of the American Medical Association, Chicago, Nov. 20, 1925

DR. ALLEN H. BUNCE in the Chair

(Concluded from page 66)

NOVEMBER 21—MORNING

How a Health Examination Should Be Conducted

DR. CHARLES ELLIOTT, Chicago: [A demonstration health examination, with comments on the findings.]

DISCUSSION

DR. HAVEN EMERSON, New York: Dr. Elliott spoke of the average weight. We should be demanding tables of optimum weights instead of average weights. At the different age groups there is wide difference between the optimum and average, more so at the age of 45 than there is below that.

In the examination for hernia, some examiners have the persons stand on their toes and stretch their hands up to open all orifices and allow the examiner to see whether there is any weakness. It is of great importance to find out whether people can use each one of their body joints satisfactorily. If there is only one method used for the education of physicians and the development of public interest, it ought to be a physical examination by a physician before medical societies.

DR. ELLIOTT B. EDIE, Uniontown, Pa.: I should like to ask whether the doctor would have gone further in search for infection if time had allowed.

DR. J. M. DODSON, Chicago: Dr. Elliott could not tell the whole story, comment on every item and get through in an hour, if he had included all these points of focal infection.

DR. ORLANDO H. PETTY, Philadelphia: Dr. Elliott's examination confirms the impression that it is something entirely different from diagnosing disease; a searching out for disease states and tendencies. If we are thorough, we shall have no trouble educating the public.

DR. CHARLES ELLIOTT, Chicago: Such an examination as this might become routine and machine-like. One should apply his best knowledge and individualize the patient.

DR. J. M. DODSON, Chicago: The medical schools have been slow to awaken to the importance of the whole preventive side of medicine in the teaching of the undergraduate. The second topic on our program is the education of the undergraduate medical student in the matter of thorough, effective conduct of examinations of this type.

THE PHYSICIAN: AROUSING HIS INTEREST AND EDUCATING HIM FOR THE THOROUGH, EFFECTIVE CONDUCT OF PERIODIC HEALTH EXAMINATIONS

The Undergraduate Medical Student

DR. CHARLES P. EMERSON, Indianapolis: The suggestion that examinations be periodic may be a new idea, but the examination of apparently well persons certainly is not new. The methods of physical examination are not new. The ability to prove by physical examination that an organ is diseased certainly presupposes one's ability to pronounce it free from disease. Our physicians have never waited for official encouragement before training themselves in the technic of a new method of diagnosis, of a new medical

therapy, or of a new operation. Why, then, do they not hasten to offer this form of service? Can it be possible that the doctors really do not want to make these examinations? Or have they some psychologic barrier, some mental "complex," which inhibits their interest. We are invited to discuss this subject from the point of view of the medical student.

The trouble is not so much in the educational content of the curriculum, but in the philosophy that shaped it. The premedical requirements now in force tend automatically to exclude from the medical school those students who would make good general practitioners, and attracts, as Dr. Frankwood Williams has pointed out to us, men who are mechanically motivated and whose interest in research is especially in the fields of the physical sciences. Can we not attract some of the other types also? But here one point needs emphasis: we are not suggesting any lowering of medical educational standards. We wish for our medical schools the best men in college, not the best of one single group only.

The best plan we can suggest is to start the student in the wards not later than at the beginning of the second year and then during the next three years to teach the preclinical and clinical subjects as parallel courses rather than as courses in series. In this way observation of the patient becomes the primary mental process, and the student attempts to use the sciences in order better to understand his patient. We must train him to a better appreciation of physical diagnosis and must create in him a different attitude of responsibility toward the public. In the examination of the sick, the doctors would seem "to get by" fairly well without physical examination, but not when studying the well. These examinations, to be well done, will require an hour each, and the fee will be relatively small and the procedure rather uninteresting to the doctor. Naturally, some do not welcome this new service, which resembles more that of public health officers, with whom of late years physicians have had less and less in common. We suspect, however, that, try as hard as they may, many of the modern medical students will have a psychologic difficulty in really interesting themselves in such service. This suggests the desirability of attracting a different group of students into medical schools, and that in turn suggests a reorganization of our medical schools.

DISCUSSION

DR. JOSEPH L. MILLER, Chicago: Dr. Emerson stated in public what many of us have thought and have been afraid to speak. Are we getting as many men to enter into medicine with the public service spirit as we did years ago? Does higher education keep those men from coming to medical schools, or does higher education take out of a man his interest for humanity? The commercial spirit, which is so widespread among the medical students, seems to dominate medicine more than it did twenty-five or thirty years ago. In the old days before we had laboratory methods, people became very expert in physical diagnosis. Laboratory methods have helped us, and our diagnoses are more accurate, but, we do not have a laboratory always with us. Teaching health examinations is different from teaching physical diagnosis on the patient. It becomes necessary to go into family history in considerable detail to find out if a patient's forebears suffered from tuberculosis, chronic arthritis, nervous disease or obesity. We must go into his personal habits and his occupation, if necessary into the questions of fresh air, ventilation and hours of work. It is just as important to find out how he spends his evenings. We have to find out exactly what things he is doing that he should not do in order to give him advice. Hours of sleep are important. We must find out what he does on Sundays, holidays and vacations. If he has no recreations, I believe we ought to encourage him, especially if he has a nervous parity, to develop some fad. The man who has no recreations does not know what to do with a vacation. If such a man breaks down, there is nothing that we can advise him to do in which he is interested. We must find out whether he is a worrier, and whether he has real or imaginary worries. We can make suggestions that will be helpful. Each one must live not as his neighbors live, but as his own personality and his own constitution require. The use of alcohol, tobacco and coffee might be gone into. I think here is a splendid opportunity to educate the man who comes to us. We should go into detail as to whether he is subject to certain acute diseases: tonsillitis, bronchitis. We can advise how to relieve constipation without drugs, and all of those things. Our function should be not merely examination of the healthy, but the examination and education of the healthy. The dangers of venereal diseases can be brought up. We want to give this man some little pointers that will help him through life.

DR. J. H. CANNON, Charleston, S. C.: I would appreciate it if the gentlemen associated with the medical schools would tell me what they are doing for the undergraduate student as regards his instruction in these health examinations. Do they contemplate or have they instituted any additional measures as a part of the curriculum or as additions to the curriculum?

DR. C. B. CONKLIN, Washington, D. C.: In the medical schools, the laboratory end of the teaching has been stressed, possibly to the exclusion of other things, but I believe that the modern student is getting instruction that should equip him to make a satisfactory examination. In the student's mind there should be a definite routine procedure in every examination. The student's mind has not been impressed with the fact that a large part of his function is to keep people well. I plan to take with me some of these books of instruction and also these slips for examination and to have the students make examinations of one another. Cabot's "Social Service and the Art of Healing," and books of that character, if placed somewhere in the course or given to the new graduate along with his diploma, teach him that his is a life of service. Somebody suggested that the graduate be required to take an entire year under a country practitioner, the old preceptor system; it might possibly change his point of view.

DR. ANNA MANN RICHARDSON, New York: In Cornell, students examining one another did not work at all, because the students do not take it seriously enough and they cannot be frank with one another. Each senior student this year will have an individual examination paid for by the college, and it will be followed by talks on the hygiene they need to know, which has to do with diet, physical exercise and the psychology of the well person.

DR. HAVEN EMERSON, New York: In the last three years we have had all students examined. There it is that the service to each student in helping him with his general manner of living comes in. We do not consider that the teaching of physical examination in the second year is at such a time that one can teach periodic health examinations; there one has to spend the time on the technic and method of the work.

DR. J. M. DODSON, Chicago: Hooking up the working and living conditions with the physical findings is not being taught in more than three or four medical schools in this country. It is not a matter of injecting a lot of new material into the curriculum, it is a question of the attitude of mind of the clinical teachers toward the matter.

DR. F. C. HAMMOND, Philadelphia: If somewhere in the curriculum of the senior year a stomatologist could give a few lectures or clinics, boys could go out with this as a part of the periodic examination.

DR. HENRY O. REIK, Atlantic City, N. J.: Concerning conditions in the medical school, the attitude of the young medical graduate and of what the physician is going to do when he goes out into practice, Dr. Emerson has given us a materpiece of analysis. When we are dealing with the family physician regarding this periodic health examination we have got to teach him over how to use the knowledge that he has.

DR. CHARLES EMERSON, Indianapolis: We now require our students to have two hours, one semester course in physical diagnosis. We then give them a whole year of clinical college work in the wards. We then require practically every one to have a whole year of internship under supervision. The older men never had two years under supervision in which they were supposed to do diagnosis in a large number of interesting cases. They did physical diagnosis; that is the difference. I cannot admit two technics, the one of examin-

ing the sick person and the other of examining the well person. I can admit two different kinds of service that one does with it. Dr. Elliott this morning gave us a good deal of pure technic. Then you ask, "Are we going to teach this?" Frankly, as a dean, how can we if the American Medical Association says to keep your hours down to 1,000 a year? We must cut down the course. I do not believe that the boys of the colleges are getting more materialistic. I think they are getting less so. They are much less materialistic than ten or fifteen years ago, but our medical schools are culling out from the whole group a little different type of man than the medical schools of that day. The technic of physical diagnosis is one thing; the service which one makes of it is quite a different thing. You ask us to appeal to our students to give this form of service, but you can help us with the state boards and in a good many different ways, but we have got to get a little different culling of students from the body as a whole if this is going to be perfectly satisfactory.

EDUCATION OF THE LAITY

DR. J. M. DODSON, Chicago: The final group of topics on the program has to do with the education of the public. That is coming on more satisfactorily than many of the men realize. At the same time, while I believe outside agencies should do the major part of it, in many places the medical profession will have to devote some attention to arousing interest.

Education of the Laity by Lay Medical Health Associations

DR. HOYT DEARHOLT, Milwaukee: We lay medical organizations, as you yourselves have shown during this meeting, have occasion frequently to be critical of the attitude of the physician toward the public health movement. We know, in turn, that you doctors frequently have occasion to be critical of us in the lay medical health associations. The function of lay medical organizations is that of selling the medical profession to the public. Cultism is evidence that the public has not an overly great amount of respect, confidence or faith in the medical profession. A peculiar thing about the doctor is the attitude that the people can attribute their own lack of health or their failure to take advantage of the things that physicians can offer to them, to utter indifference. That, of course, is absurd. They all want that fifteen years of additional life that Fisher and the other medical economists offer and have promised to them, only they do not know how to go about it to get it. The lay medical organization can do for the physicians what the physicians cannot convincingly or in good taste do for themselves. It has been amazing to me that physicians have been so slow to grasp this opportunity. I do not have much quarrel with the medical profession for the manner in which it meets its obligations; I think it does it pretty well, but I do think that physicians are rather slow in grasping the opportunity to push their profession forward.

I should like to show a card we recently got out for distribution through the doctors' offices, simply calling attention to the fact that tuberculosis, chronic nephritis, heart disease, apoplexy, are more easily prevented than cured, calling on the public to realize the value of the periodic physical examination. Some of the doctors thought we were asking them to hang this up in their offices to advertise our organization. That was not the primary purpose. Physicians would not hang a card up advertising themselves; it was felt that if it was signed with the name of a well known and popular lay health organization there should be no diffidence on their part in doing so. Another little enterprise our organization has entered on. It has seemed to me as a physician that we have been exceedingly slow to get ourselves, our profession, or our art known by the general public as much as we should, therefore, during the year our organization got out a series of charts. We have put in every school room in the state of Wisconsin one of these charts each month with one after another of the medical heroes listed. I heard one of the superintendents of a Wisconsin tuberculosis sanatorium admit the other day that 80 per cent of the patients admitted into that institution come in in an advanced stage of the disease. A large part of that fault lies with the consumptive himself. We know a very large part of this fault lies with the medical profession. If we lay medical health organizations can keep pushing up to the medical profession the cases which will constitute an obligation on the part of medical men to examine the cases, we hope that more early diagnoses will be made.

We hear a great deal about the menace of state medicine that may come from and through the work of lay health organizations. The lay medical organization offers the best means in the world to push it back. I am among those who detest the whole idea of state medicine, and I am very strongly for individual medicine. Many of the things that are being taught by lay health organizations are perfectly absurd and ridiculous. Whose fault is that? The medical profession has allowed the leadership in these lay medical organizations to get out of their own hands. They have been left too much to well intentioned people without the background that leaders in these organizations should have. If you find your lay health organization not serving the cause of medicine and the medical profession as well as you think it ought to, do not knock it. Go into it vigorously and see to it that the leadership is taken by men who have the right background and the ability to make that work take the course that they know it should take.

Education of the Laity by Examinations at Health Expositions and Exhibits

DR. ROY R. FERGUSON, Chicago: The family physicians are the ones who are doing the bulk of the work and the ones who will do the bulk of the work in these periodic health examinations. There are thousands of them who are capable of doing these things, and yet we do not object to a little instruction on certain lines. General practitioners are just as altruistic as specialists. We believe that in giving these people the right periodic health examination and then giving them the right advice we are extending life eight or ten or twelve or fifteen years. But we must remember that the doctors must be fed while they are doing this work, and the Illinois State Medical Society believes in getting the public to them and in furnishing them with this examination blank.

Last spring the Illinois State Medical Society held a national baby congress and health exposition. In about a month after the exposition was closed, we sent a complete chart together with a letter to the mother of every child who was examined. Half of the family physicians in Chicago probably received anywhere from one to five of these children referred back to them for the proper care and not referred to clinics free of charge when they can afford to pay for such a thing. We ran, also, a physical examination in just about the same manner that Dr. Elliott demonstrated to us this morning. We gave that patient enough of an examination to make him understand that it is necessary for him every six months or every year or every two years to have a check up. Our lay eduction committee, working with the women's clubs of the state, of which there are more than 70,000 members, have entered into an agreement whereby every one of those women is to see that one preschool child is taken to a physician for a check up. That work should not be done free of charge; it is educational, it is for the benefit of the public.

We have sent out with our state medical journal an examination blank, and we keep a check on every one of these, because the doctors will be advised as to where to send their reports. We take into our work the dentists, and the dentists are doing excellent work in all referred work. We are now holding baby health shows in different parts of the state, in different parts of the city, but we have not yet begun to hold those things the way we expect to in the future. The state department of health has always been holding baby shows in connection with state fairs. The county medical society should be the organization to oversee the examination at these health expositions. I believe that our department of health is also of the opinion that the medical society should do these things. We should have been doing them all these years, and it has taken some of the good lay educational associations to wake us up. There are a few good ones. We have held in the city of Chicago at least six baby health conferences. We are staging for the Illinois Dental Society

at its meeting here a physical examination as it should be done completely, so they can talk physical examinations to their people the same as we talk dental examination to our people. Our work is not to give service which runs into the hundreds of millions to those who can afford to pay for this service, but only to get the people as a whole to thinking periodic health examinations. When such examinations are done by the medical profession, then all defects should be referred back to the family physician and not to lay clinics for correction.

DR. J. M. DODSON, Chicago: I like to think of the time when every medical man, every practitioner will think he is a constituent and integral part of the health department of the state. We are fortunate in having here the commissioner of health of Connecticut.

Education of the Laity by Departments of Public Health

DR. STANLEY H. OSBORN, Hartford, Conn.: The keynote of the state department of health of Connecticut is to make the physicians and the general practitioners realize they are a part of the public health program. The Connecticut state department of health is in closer contact with physicians at the present time than ever in the past. We have attempted to stear clear of anything that would suggest state medicine, and the opposite, of course, is to tell the physician everything we are doing. The result has been that the Connecticut state medical society has a special committee appointed to work with the state department of health.

We are selling periodic health examinations in Connecticut just exactly the way any commercial firm goes about selling a commodity; that is, using the old axiom of supply and demand. If we can make a demand on physicians for health examinations, we shall not have to worry whether the physician today knows how to do those examinations or not. We are attempting in two ways to foster the periodic health examination movement, one of which is modestly and without any head lines to inform the physician (it could not be called educating the physician) that there is such a movement under way, and try to show to him through talks at the county and state meetings the fact that he is quite a factor in this particular public health movement. The other is stimulating the people in any way we can to show them the value of it, and then they will go to the physician and ask for such an examination. We are trying to stimulate the demand for such examinations by the usual things: talks, pamphlets, leaflets, radio, films, everything under the sun; and in every little place: church meetings, town meetings, welfare meetings, anything at all that will be stimulating to the public. We have issued in Connecticut periodic health examination blank. This blank of ours is in duplicate, so that a carbon can be put between. We had to get something which would not seem too severe to start with. We felt that the American Medical Association blank was ideal to work for and perhaps elaborate later on.

As for results, we are having come into the office innumerable requests for these blanks, twenty-fives and fifties. We have had several requests from physicians for 500 copies. We furnished them at cost. The health examination work is going ahead with leaps and bounds. We are going to issue to each physician in the state a little manual that the American Medical Association has just gotten out. The material is wanted and it is being talked about now. They are going to read it or use it, whereas six months or a year from now they would not look at it half so much. It is not the splurge once a year that is going to have half the effect that the constant hammering, month by month, will have, and the ways of doing that are through leaflets, weekly health bulletins, pamphlets and the radio.

DR. J. M. DODSON, Chicago: Dr. D. Chester Brown, of the Board of Trustees of the American Medical Association, in charge of the Committee on Scientific Exhibits, has an announcement to make.

DR. D. CHESTER BROWN, Danbury, Conn.: The Committee on Scientific Exhibits has under consideration the construction of films or slides relative to making these examinations to interest the general practitioner. When that is accomplished, they will be used for the scientific exhibit first and then they will be lent or rented to the various constituent organizations of the American Medical Association.

DR. J. M. DODSON, Chicago: The subject is open for general discussion.

DR. I. D. RAWLINGS, Springfield, Ill.: We have tried to promote this demand for the health examinations. We have used the newspaper releases each week to 200 newspapers in the state, a weekly bulletin on some live subject, and in almost all of these, or in many of them, we are able to stress the annual physical examination in a line or two. We send out healthgrams. This often has an item on the annual physical examination. We had health films. For a number of years we have had better baby conferences at Springfield and the fifty or sixty state fairs. We have a monthly publication that goes to 20,000 people in the state, our *Health News*, and in that we have frequent publicity for education and for publicity of the physical examination. In our work down state we found first we had difficulty in getting the cooperation of the physicians. Instead of going to the state secretary, as we should have done, we went to societies favoring this sort of work and we did not get the cooperation we would have gotten otherwise. In the last two years the county medical society has cooperated with us wonderfully. We are hoping that all this will be taken over by them, at least all the medical part of the examinations.

DR. H. E. DEARHOLT, Milwaukee: The question has come through this whole conference, Who is going to pay? I think that a good way to pay, probably the best way, is for the public to make its contributions to some lay organization, some lay medical health organization, and then the physical examinations given by that organization shall be free. The whole thing is a matter of salesmanship. Free demonstration has had an enormous amount to do with the popularity of the automobile. If we could look beyond the immediate dollar to the ultimate dollar, we should not have so much question about who is going to pay.

DR. J. M. DODSON, Chicago: I did want to call attention to one serious danger in the manner in which these examinations are conducted at expositions. They are conducted by a group of specialists. It is teaching the public absolutely the wrong thing, for that is not the way these examinations can be conducted if they become general. We are doing a similar thing in our medical schools today. Every patient entering a dispensary or a hospital ought first to be examined thoroughly from top to toe by a general practitioner or his equivalent, and then when it is discovered that he belongs in a particular department, he should be referred there. Yet, in practically all the outpatient departments of our medical schools, our students are being taught in a way which emphasizes the necessity of specialism. That is one reason why we are not graduating any more general practitioners.

DR. E. B. EDIE, Uniontown, Pa.: My topic was the education of the laity by newspapers and magazines. Those are national affairs and I had to take it in a national way. It seemed to me that there would have to be some national headquarters to do that work. I suggested a more or less professional publicity man. Since getting here, I think we have those men. I do not see why we should not have a separate organization with an interlocking director, which could take money from wealthy persons to carry out health conservation service. I suggested that we also have men in the profession who could do this thing in a big way. We have them right here. You have got the idea that I was saying that the general practitioner could not do these examinations. He can do the physical examination. I hope this thing is going to lead to a state where we are going to pick up the early things, which are largely focal infections. The general practitioner is not capable at this time of doing these examinations without help. As to the young man going into medicine, service is a religion now. This is the greatest service in the world.

DR. J. M. DODSON, Chicago: We hope that you will keep us informed as to any new methods of getting the general practitioners interested in this matter and educating them for this service so we may use that information to help other groups who are seeking the same end.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to THE JOURNAL for a period of three days. No foreign journals are available prior to 1920, nor domestic prior to 1923. Periodicals published by the American Medical Association are not available for lending, but may be supplied on order. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested).

Titles marked with an asterisk (*) are abstracted below.

American Journal of Electrotherapeutics and Radiology, New York

93: 399-438 (Nov.) 1925

Physiotherapy Department and Hospital. A. B. Hirsh and R. Kovacs, New York.—p. 399.

Laboratory Methods in Teaching of Physical Therapeutics. W. H. MacCraken, Detroit.—p. 404.

Facts and Fallacies of Physical Therapy. M. Fishbein, Chicago.—p. 407.

Why We Use the Static Current. W. B. Snow, New York.—p. 412.

American Journal of Hygiene, Baltimore

5: 709-858 (Nov.) 1925

*Changes in Intestinal Flora of Rats on Calcium Deficient Diet. R. E. Hoffstadt and S. J. Johnson, Seattle.—p. 709.

*Epidemiology of Infantile Paralysis. Relation Between Multiple Cases in Same Family. W. L. Aycock and P. Eaton, Boston.—p. 724.

*Comparison Between Multiple Cases of Measles, Scarlet Fever and Infantile Paralysis. W. L. Aycock and P. Eaton, Boston.—p. 733.

Infection and Resistance in Bird Malaria; Periodicity and Rate of Reproduction of Parasite. L. G. Taliaferro, Baltimore.—p. 742.

Factors That Influence Rate of Increase of Hookworm Infection. W. A. Sawyer, Baltimore.—p. 790.

Influence of Certain Experimental Factors on Course of Infections with Plasmodium Praecox. G. H. Boyd, Baltimore.—p. 818.

*Experimental Investigation of Supposed Relation Between Good Physical Condition and Natural Resistance to Infection. R. A. Spaeth, Baltimore.—p. 839.

Effect of Calcium Deficient Diet on Intestinal Flora.—The observation made by Hoffstadt and Johnson shows that a calcium deficient diet causes definite constipation and lowers the aerobic bacterial count. Probably neither aerobic nor anaerobic bacteria cause the constipation. A calcium deficient diet caused the collapse of the small intestine with an apparent thinning of the wall.

Epidemiology of Infantile Paralysis.—The time interval between cases of multiple infantile paralysis in 253 families has been studied by Aycock and Eaton. The diagnosis of abortive cases of infantile paralysis is influenced to such an extent by the presence of cases showing paralysis in the same family that their inclusion gives an erroneous impression of the interval between multiple cases. A study of cases showing multiple paralysis indicates that a large proportion of so-called secondary cases arise from a common source with their respective primary cases. The much smaller proportion of cases presenting secondary paralysis in the same family, which occurred from ten to eighteen days, averaging fourteen days, after the primary cases, are regarded as probable true secondary cases. These findings, in connection with a consideration of the incubation period of the experimental disease, indicate that the period of incubation in man varies from ten to eighteen days, averaging fourteen days. It is also inferred that the time of greatest infectiousness of infantile paralysis is probably at the beginning, or within the first three or four days of the acute stage of the disease. This study suggests that the search for the source of infection should be centered at about the fourteenth day before the onset of acute symptoms.

Multiple Cases of Measles, Scarlet Fever and Infantile Paralysis.—The data presented by Aycock and Eaton show that secondary cases of measles usually occur from ten to twelve days after the onset of the initial case in the family, and that third cases occur, as a rule, simultaneously with the second cases. This indicates that the majority of multiple cases are derived from the initial case. Since the interval between the initial case and subsequent cases corresponds to the incubation period of the disease, it may be stated that multiple cases, as a rule, are contracted from the initial case at about the time of its onset. Scarlet fever acts similarly, except that, the period of incubation being short, secondary cases overlap common source cases, making analyses of the curve more difficult. Unlike measles, scarlet fever has a relatively large number of late secondary cases, doubtless due to a prolonged period of infectivity. It thus appears that measles and scarlet fever are both introduced into the family by the initial case from which, after the onset of the disease, the infection is transmitted to other members of the family. In the majority of instances, particularly in measles, the virus is transmitted to other members of the family simultaneously very near the time of onset of the initial case. In other words, the initial case of measles or scarlet fever may be considered as the source of the family outbreak. Infantile paralysis, when introduced into a family, acts quite differently from measles or scarlet fever. Only exceptionally do multiple cases occur. When multiple cases do occur, it is usually within a short time of each other, indicating simultaneous infection. In this respect, multiple cases of infantile paralysis resemble second and third cases of measles. This indicates that contact infection during the acute stage does not play the same rôle in this disease as in measles or scarlet fever, but that the virus of infantile paralysis enters the family in such a way that in the few instances where more than one member is infected, this is accomplished practically simultaneously.

Relation Between Physical Condition and Natural Resistance to Infection.—The evidence presented by Spaeth suggests that the increase in natural resistance to infection, following forced exercise to exhaustion, cannot be correlated with the good physical condition of the exhausted animals. Guinea-pigs, on a reduced diet, that have suffered a weight loss equivalent to the weight lost by forced running, resist intraperitoneal infections of type 1 pneumococcus better than do normally fed guinea-pigs. Young starved guinea-pigs (from 150 to 300 gm.) and exhausted guinea-pigs of similar weight are physiologically comparable in so far as both groups, when infected with type 1 pneumococcus and fed immediately thereafter, resist infection better than do normally fed control guinea-pigs. The starvation experiments indicate that in exhausted guinea-pigs increased resistance to infection is, in some at present unexplained way, related to the weight recovery process and has nothing to do with fatigue nor with fatigue products. The greater resistance to infection of both starved and exhausted animals (guinea-pigs) suggests that natural resistance is in no sense a static matter, but is, in part, at least, a function of anabolic rate.

American Journal of Obstetrics and Gynecology, St. Louis

10: 619-764 (Nov.) 1925

*Perforating Ovarian Cysts (Sampson's) with Invasion of Bladder Wall; Two Cases. F. E. Keene, Philadelphia.—p. 619.

Adenomas of Endometrial Origin in Laparotomy Scars Following Incision of Pregnant Uterus; Two Cases. N. S. Heaney, Chicago.—p. 625.

Adenomyoma of Abdominal Wall. W. C. Danforth, Evanston, Ill.—p. 630.

Syphiloma Vulvae; Case. A. Stein, New York.—p. 633.

Spontaneous Intra-Uterine Amputations. J. S. Latta, Omaha.—p. 640.

*Heterotopic or Misplaced Endometrial Tissue. J. A. Sampson, Albany, N. Y.—p. 649.

*Relationship of Ectopic Adenomyomas to Ovarian Function. W. P. Graves, Boston.—p. 665.

Inversion of Uterus After Childbirth; Case. H. N. Mason and M. P. Rucker, Richmond, Va.—p. 671.

*Adenomyosis Uteri. O. Frankl, Vienna, Austria.—p. 680.

*Malignant Ovarian Neoplasms. C. C. Norris and M. E. Vogt, Philadelphia.—p. 684.

Pantopon Scopolamin Seminarcosis in Labor. P. J. Carter, New Orleans.—p. 693.

New Explanation for Occurrence of Eclampsia in Pregnancy. H. Elwyn, New York.—p. 698.

*Treatment of Umbilical Cord by Short Ligation and Use of a Clamp. J. F. Dicks, New Orleans.—p. 706.

Case of Inguinal Hernia Complicated by Hernia of Ovaries and Tubes. W. N. Rowley, Huntington, W. Va.—p. 709.

Case of Uterus Didelphys. W. A. Malcolm, Peoria, Ill.—p. 712.

*New Maneuver in Abdominal Palpation. C. O. McCormick, Indianapolis.—p. 714.

Spontaneous Rupture of Sarcoma of Ovary; Case. H. Koster, Brooklyn.—p. 716.

Analysis of Work of Obstetric Clinic of Johns Hopkins Hospital for 1924: Schema for Ready Indexing of Obstetric Records. E. L. Stone and W. E. Sisson, Baltimore.—p. 718.

Endometrial Invasion of Bladder Wall.—In two cases reported by Keene, intense bladder symptoms were produced by endometrial invasion of the bladder wall, secondary to endometrial cysts of the ovary. Prior to operation, the exact nature of the lesion was determined by exclusion of inflammatory neoplastic lesions of the kidney and bladder and by the more or less typical cystoscopic picture in each case. Unless the possibility of such a lesion is borne in mind, it might readily be mistaken for a malignant tumor. Relief of the symptoms and restoration of the bladder to normal followed on removal of both ovaries, showing that excision of the affected area in the bladder is unnecessary.

Misplaced Endometrial Tissue.—Sampson asserts that the invasion and dissemination of benign endometrial tissue employ the same channels as the invasion and dissemination of cancer.

Ectopic Adenomyoma and Ovarian Function.—Graves does not subscribe to the sweeping statement that ectopic adenomyomas do not retrograde after removal of the ovaries, nor does he feel justified in making a general statement to the contrary. But he is convinced that in the majority of cases the endometriomas may be counted on to atrophy in the absence of ovarian function and that this probability in their behavior is a valuable guide to treatment in cases like those of rectovaginal adenomyomas in which a radical operation would greatly mutilate the patient or seriously injure her for life.

Adenomyosis Uteri.—This term means the penetration of the uterine mucosa, of both the glandular epithelium and its surrounding stroma, into the myometrium. The entire material seen by Frankl taken from thirty cases showed in twelve instances the presence of myomas, mostly of very small size. Eleven times he found the mucosa in a hyperplastic condition. Coincidently, he found in one case a carcinoma of the ovary, once an ovarian cyst, four times an inflammatory process of the adnexa, and once a carcinoma of the cervix.

Malignant Tumors of Ovary.—In a series of 1,028 ovarian neoplasms reviewed by Norris and Vogt, 11 per cent were malignant. Twenty-three per cent of the glandular adenocarcinomatous patients were alive three years or more after operation, as against 70 per cent of the papillary adenocarcinoma cases. In almost 60 per cent of the cases that appear favorable at operation, the patients survive three years.

Clamping Umbilical Cord.—Dicks favors the use of a clamp for two reasons: It does away with the danger of a slipping ligature and consequent infection, and when the cord is clamped close to the skin, early detachment is favored, thereby minimizing the danger of infection and consequent umbilical hernia.

Palpation of Fetus in Abdomen.—In the method described by McCormick, the patient is placed on an examining table, and the abdomen exposed as for abdominal palpation. The examiner stands to her right facing her, and with his right hand assuming a "C" grasp, he places the end of his extended right thumb perpendicularly to the umbilicus, and firmly, though gently, depresses it. He then applies the "C" grasp, composed on the palmar surface of the thumb, radial palm and first two or three fingers, to the left part of the patient's abdomen along the transverse plane passing through the umbilicus. The ends of the fingers should go as far back on the loin as their extent will comfortably allow. After a few seconds' effort in noting whether he has the firm round smooth body of the baby within his grasp, or whether it contains soft, irregular, or indefinite parts, he releases the grasp, and still holding his thumb against the depressed umbilicus, pivots the palm and fingers 180 degrees counterclockwise, and reapplies a similar grasp to the right part of the abdomen along the same transverse plane. Then for comparison, he makes the same notations on the parts grasped as were made on the left. The maneuver is primarily recommended as a substitute for the classic second maneuver; namely, that of palpating the sides of the uterus with the entire palmar surface of both hands. It is applicable with the fetus lying in the longitudinal axis, but it is of equal value in transverse or oblique presentations by using the same technic, except applying the grasp first below and then above the umbilicus along the longitudinal plane. It is likewise applicable in cases of multiple pregnancy. The maneuver is practical only after seven months' gestation, because the umbilicus is then somewhere near the center of the so-called "fetal triangle."

Archives of Internal Medicine, Chicago

36: 593-750 (Nov. 15) 1925

*Peripheral Pulsations in Veins in Congestive Failure of Heart, Associated with Pulsation of Liver and Tricuspid Regurgitation. W. J. Kerr and S. L. Warren, San Francisco.—p. 593.
*Effect of Changes in Position of Heart on Q-R-S Complex of Electrocardiogram. W. J. Meek and A. Wilson, Madison, Wis.—p. 614.
Vital Capacity, Respiratory Frequency, Pulse Rate and Systolic Blood Pressure in Heart Disease. H. W. Schmitz, New York.—p. 628.
Clinical Diagnosis and Intestinal Flora. H. Tsuchiya, Battle Creek, Mich.—p. 636.
*Defects of Membranous Bones, Exophthalmos and Diabetes Insipidus; Case with Necropsy. C. Q. Thompson, J. J. Keegan and A. D. Dunn, Omaha.—p. 650.
*Lipemia and Reticulo-Endothelial Apparatus. B. S. Oppenheimer and A. M. Fishberg, New York.—p. 667.
*Renal Injuries by Amino-Acids. L. H. Newburgh and P. L. Marsh, Ann Arbor, Mich.—p. 682.
*Auricular Wave (P) of Electrocardiogram; Pulmonic and Mitral Stenosis. A. A. Alexander, Oakland, Calif.; H. F. Knight, Rochester, N. Y., and P. D. White, Boston.—p. 712.
Action of Paraphenylendiamin. K. W. Dewey, Chicago.—p. 724.
Intermittent Auricular Fibrillation; with Fleeting Rapidly Recurring Paroxysms Having Identical Type of Auricular Behavior. C. C. Wolferth, Philadelphia.—p. 735.
*Roentgen-Ray Treatment of Spleen in Asthma Bronchiale. G. L. Waldbott, Detroit.—p. 743.
Nonspecific Protein Reaction. F. B. Seibert, Chicago.—p. 747.

Pulsation in Peripheral Veins in Heart Failure.—Pulsations in the peripheral veins, especially in the basilic veins of the arms, are suggested by Kerr and Warren as an early and valuable sign in detecting the presence of myocardial or congestive heart failure together with a relative tricuspid insufficiency. Their magnitude interprets the degree of myocardial and tricuspid incompetence. Their appearance in cases of marked decompensation suggests a bad prognosis.

Position of Heart for Electrocardiographic Study.—The importance of having the heart in the normal position for all electrocardiograms is emphasized by Meek and Wilson. It seems clear that it is impossible to tell how much a change in position may affect the electrocardiogram or how much an abnormal electrocardiogram may be the result of variations in position, since the outcome is due to the summation of different rotations. Variations in position may accentuate, neutralize or reverse the effects of a slight degree of hypertrophy. It is for this reason that, as Herrmann and Wilson insist, the influence of the relative weight of the two ventricles predominates only when the heart is greatly hypertrophied.

Defects of Membranous Bones and Diabetes Insipidus.—In a case of defects in membranous bones, exophthalmos and diabetes insipidus studied clinically and pathologically by Thompson et al., dyspituitarism as a cause for the syndrome was excluded by the absence of material pathologic changes in the hypophysis. Pathologic support was given to current work on experimental polyuria which puts the lesions of diabetes insipidus in the hypothalamus. From clinical behavior and from pathologic findings, an infectious etiology seemed more likely than a primary metabolic (endocrinologic) disturbance.

Lipemia and Reticulo-Endothelial Apparatus.—A case of diabetic lipemia is described by Oppenheimer and Fishberg in which the lipoid storage is manifested by almost complete replacement of the splenic pulp by large foam cells, marked deposition of lipoid in the enlarged Kupffer cells, and yellow patches in the intima of the aorta and the endocardium composed of foam cells.

Renal Injuries by Amino-Acids.—It is demonstrated by Newburgh and Marsh that the amino-acids arginine aspartic acid, lysine, histidine, tyrosine, tryptophane and cystine are nephrotoxic.

Auricular Wave of Electrocardiogram.—A study has been made by Alexander et al. of 132 patients who have shown by electrocardiograms auricular or P waves greater than 0.1 millivolt (1 mm.) in amplitude in lead I or equal to or greater than 0.3 millivolt (3 mm.) in lead II. Of these cases

nineteen showed definite congenital pulmonic stenosis; three showed doubtful congenital pulmonic stenosis; seventy-two, definite mitral stenosis; six, doubtful mitral stenosis; two, probable interventricular septal defect, and eighteen, stenosis or congenital heart defects—a total of 120, or 91 per cent, of the 132 cases. Only twelve cases are not readily accounted for. Ten of these patients had hypertension with or without nephritis, not included in previous groups. Of 100 unselected consecutive patients with mitral stenosis, fifty-eight had normal rhythm. Forty-two showed auricular fibrillation. Of the fifty-eight cases with normal rhythm, forty-nine showed either an abnormally large P_1, P_2 or both.

Roentgen-Ray Irradiation of Spleen in Asthma Bronchiale.—A boy, aged 6½ years, was treated by Waldbott with a small dose of roentgen ray over the spleen. He has been entirely relieved from the clinical manifestations of this disease.

Boston Medical and Surgical Journal

193: 1045-1084 (Dec. 3) 1925

Management of Obstructive Jaundice as Factor Affecting Surgical Risk. J. P. Bowler, Manchester, N. H.—p. 1045.
*Liver Function. III. Methods for Determining Furfurol Number and Bilirubin Concentration of Duodenal Contents. C. W. McClure, M. E. Huntsinger and O. C. Montague, Boston.—p. 1050.
*Id. IV. Procedure for Uniform Stimulation of Biliary Flow. C. W. McClure, W. L. Mendenhall and M. E. Huntsinger, Boston.—p. 1052.
*Id. V. Disturbed Liver Functions. C. W. McClure, M. E. Huntsinger and J. Gottlieb, Boston.—p. 1054.
Dramatic Story of New Harvard Medical School. F. C. Shattuck, Boston.—p. 1058.

Bilirubin Concentration of Duodenal Contents.—McClure, Huntsinger and Montague describe a method for estimating the bilirubin found in duodenal contents, and also a simplification of the bile acid method previously described.

Stimulation of Biliary Flow.—Oleic acid has been found by McClure, Mendenhall and Huntsinger to be a uniform stimulant to the flow of bile in both normal man and animals. The results obtained by the study of normal human duodenal contents after stimulation of the flow of bile by oleic acid or by magnesium sulphate solution have been found to be similar. In all, eighteen subjects have been studied, which is considered to afford sufficient data to establish the character of normal duodenal contents obtained after the use of oleic acid. A series of animal experiments substantiate completely this conclusion. The findings show that the examination of duodenal contents as described furnishes a fairly delicate index of the state of liver function.

Disturbed Liver Function.—McClure et al. state that there exists a group of patients presenting the symptoms commonly ascribed to cholecystitis, a group with return of symptoms after cholecystotomy or cholecystectomy, and another group complaining of gastro-intestinal symptoms not characteristic of any particular clinical entity. The three groups are characterized by an abnormal state of liver function, as demonstrated by examination of the duodenal bile. The symptoms presented by the three groups of patients are frequently relieved during or following intraduodenal therapy. Relief from or amelioration of symptoms is accompanied by, or followed by, improvement in the state of liver function, as demonstrated by examination of duodenal bile. Evaluation of disturbed liver function, and its treatment when found, are worthy of consideration in patients presenting the symptoms of cholecystitis, provided the surgical condition of the patient warrants procrastination. Evaluation of the state of liver function is worthy of consideration in ulcer patients who are not progressing satisfactorily, in patients who present unexplained gastro-intestinal symptoms, and before making the diagnosis of a gastro-intestinal neurosis.

Endocrinology, Los Angeles

9: 265-352 (July-Aug.) 1925

*Roentgenographic Study of Sella Turcica in Abnormal Children. M. B. Gordon and A. L. L. Bell, Brooklyn.—p. 265.
*Studies on Vigor. IV. Effect of Testicle Grafts on Spontaneous Activity. R. G. Hoskins, Columbus, Ohio.—p. 277.
*Interglandular Associations. F. S. Hammett, Philadelphia.—p. 297.
Surgery of Glands of Internal Secretion. G. W. Crile, Cleveland.—p. 301.

Form of Sella Turcica in Children.—Roentgenographic studies were made by Gordon and Bell of the contours of the sella turcica in sixty-four abnormal children. The findings were compared with those of 104 normal children. It was found that the shape of the sella does not differ significantly in normal and abnormal children. The type of disorder is not correlated with the shape of the sella. Round and oval shapes predominate in both abnormal and normal children, and flat sellas are the least frequent. The formation of the sella does not differ in abnormal children from that in normal children. There is no formation characteristic of any individual disease. The excavation that has been described in mongolian idiots is extrasellar. It may be uncovered or covered by the lesser wings of the sphenoid. It is a normal formation found with the same frequency in all children and is not characteristic of any known disorder. The size of the sella is not influenced by any of the diseases studied. As in the normal series, no relationship was found between the size of the sella and the size of the head, nor between the shape of the sella and the shape of the head.

Effect of Testicular Transplantation.—Hoskins says that in fifteen experiments with castrated rats and three with senile subjects, testicular grafts consistently failed to bring about any significant improvement of activity.

Interglandular Associations.—In Hammett's opinion it is probable that the glands of internal secretion, as a group, are no more directly and specifically interrelated in function than they are in size.

Florida Medical Association Journal, Jacksonville

12: 123-146 (Nov.) 1925

Case of Intestinal Obstruction. L. J. Efird, Tampa.—p. 123.
Clinical Aspects of Adenomyoma. W. M. Jordan, Miami.—p. 124.
Drinking Water with Meals a Potential Aid to Digestion. G. M. Niles, Atlanta, Ga.—p. 127.
Individual Delinquency. G. H. Benton, Miami.—p. 129.
Ovarian Tumors in Childhood; Case of Large Ovarian Cyst, with Twisted Pedicle, Simulating Pregnancy, in Child Aged Ten Years. W. W. Massey, Quincy.—p. 130.
Myocardial Dysfunction. W. C. McConnell, Chattahoochee.—p. 132.
Looking Backward Over Fifty Years of Health Work in Florida. J. Y. Porter, Key West.—p. 134.

Indiana State Medical Association Journal, Ft. Wayne

18: 407-444 (Nov. 15) 1925

*Physical Therapy. C. P. Emerson, Indianapolis.—p. 407.
Blood Chemistry. B. W. Rhamy, Fort Wayne.—p. 412.
Some Problems in Medical Economics. M. L. Harris, Chicago.—p. 416.
*Rocky Mountain Spotted Fever in Indiana; Report of Case. C. R. LaBier, Terre Haute.—p. 418.

Physical Therapy.—For some of the common diseases which physicians are called on to treat, Emerson asserts, physical therapies are the best treatments of all, and in the treatment of many others they are helpful. The regular medical profession has neglected seriously these forms of therapy, and as a result poorly trained men have profited greatly. Certain physical therapies have established themselves in regular practice with very little opposition. Roentgenotherapy is one, for illustration, and those therapies which under the term physical reconstruction reached such prestige during the war. Among the various physical treatments which Emerson has known to be helpful in functional cases of backache are: calisthenic movements; deep massage of the back and its mechanical equivalent, the vibrator; heat in almost any form; a little physical support, such as is given by surgeons' adhesive plaster; and static electricity, a rather long spark gap being used. Other useful measures for indicated cases are: active and passive movements; hydrotherapy; the Nauheim bath for myocarditis; ultraviolet ray; diathermy; faradic and galvanic currents; sinusoidal treatment in cases of chronic constipation and conditions of abdominal atony; high frequency in cases of arterial hypertension; reeducational therapy. Physical therapy of all forms requires organization; it means apparatus; it means technical workers who know how to use the machine skilfully under supervision. No therapy is, because of any quality within itself, a quackery. All depends on the man who administers it. The great good

that can be obtained in no other way than from physical therapy should be used for the patient and not exploited by the untrained.

Rocky Mountain Spotted Fever in Indiana.—LaBier's case is of interest since it occurred in Terre Haute, Ind., in a girl who had not been out of the immediate vicinity of the city. The clinical course was typical. While playing in a pile of gravel the child had been bitten by a brown and black bug the size of a "butter bean." On examination, a lesion was found in the scalp behind the right ear, and in a short time the lymph glands behind the ear were enlarged and tender. Constitutional symptoms set in three days later—drowsiness, headache, fever and a skin rash. One outstanding symptom was prevalent throughout the course of the disease, a pronounced sleepy condition. The child could be aroused and immediately would fall back to sleep, when she would have to be aroused again for food, liquids and medication. This was quite marked during the first three weeks of illness.

Journal of Comparative Neurology, Philadelphia

39: 325-492 (Dec. 15) 1925

Identification of Cells and Fibers Concerned in Innervation of Teeth. W. F. Allen, Portland, Ore.—p. 325.
Peripheral Distribution of Cranial Nerves of Certain Ganoid Fishes (Amia Lepidosteus, Polyodon, Scaphirhynchus and Acipenser). H. W. Norris, Ames, Iowa.—p. 345.
Amphibian Forebrain. III. Optic Tracts and Centers of Amblystoma and Frog. C. J. Herrick, Chicago.—p. 433.

Journal of Infectious Diseases, Chicago

37: 385-480 (Nov.) 1925

*Standardization of Typhoid Vaccine. J. W. Smith, Jr., Washington, D. C.—p. 385.
Relationship of Enteritidis-Paratyphoid B Infections to Hyperglycemia in Rabbits. M. L. Menten and H. M. Manning, Pittsburgh.—p. 400.
Isolation of Bacteriophage Free from Bacterial Proteins. L. Arnold and E. Weiss, Chicago.—p. 411.
*Rôle of Nongranular Blood Leukocytes in Formation of Tubercle. A. A. Maximow, Chicago.—p. 418.
*Reaction of Lung Tissue to Tuberculous Infection in Vitro. F. J. Lang, Chicago.—p. 430.
Effects of Diphtheria Toxin on Myocardium of Guinea-Pigs. C. W. Apfelbach, Chicago.—p. 443.
Isolation of Substances with Immune Properties. A. Locke and E. F. Hirsch, Chicago.—p. 449.
*Viability of Mycobacterium Tuberculosis in Semi-Arid Environment. M. E. Caldwell, Tucson, Ariz.—p. 465.
Influenza Studies. XX. Identification of Fixed Type Pneumococcus Carriers. W. B. Sharp and E. Urbantke, Chicago.—p. 473.

Sandardization of Typhoid Vaccine.—Evidence is presented by Smith that there is a basic error in the Wright method of standardizing vaccines, which is due to the loss of red blood cells. In the usual Wright preparation, the cells are lost to a great degree; in the counting chamber or "wet Wright" count, to a lesser degree. The loss appears to be unavoidable by even the most painstaking technic, and is probably accounted for largely by sedimentation and adherence to the walls of the apparatus. Hemolysis probably plays a minor rôle. The counting chamber method of standardizing typhoid vaccine gives a count which is only half that obtained with Wright's method. For purposes of accuracy and uniformity, Smith says, it seems advisable to adopt the counting chamber method of standardization and to revise the expression of dosage to accord with the new standards.

Rôle of Leukocytes in Formation of Tubercle.—The study of in vitro cultures of various tissues and of blood leukocytes inoculated with tubercle bacilli, Maximow says, shows that the epithelioid and giant cells of the tuberculous lesions have the same double origin as the polyblasts or mononuclear exudate cells in common or purulent inflammation. They arise partly from local fixed elements—the histocytes of the respective tissue (resting wandering cells or clasmatocytes, reticular cells, cells of Kupffer, "endothelial" cells of the sinuses in the spleen, etc.), partly from the migrated (or local, if available), nongranulated, i. e., lymphoid, leukocytes—both monocytes and lymphocytes. According to the tissue and to the special circumstances of the case, the relative number of the epithelioid cells of histocytic and of lymphoid descent may vary.

Reaction of Lung to Tuberculous Infection.—Lang states that in a culture of lung tissue inoculated with tubercle bacilli, both tissue cells and bacilli can be kept alive for a long time in a state of a peculiar symbiosis (twenty-one days). Like the phenomena observed in human phthisis, the tissue shows, in response to the infection with tubercle bacilli, either a productive or an exudative reaction. This reaction is connected exclusively with cellular elements of the interstitial connective tissue of the parenchyma of the lung. This tissue contains, the hematogenous cells of the circulating blood being ruled out in cultures, two cell types: (1) the endothelium of the capillaries, and (2) the elements which Lang has described as "septal cells," which are identical with the "granular" or "vacuolated" nucleated cells of other authors and are usually supposed to belong to the "respiratory epithelium." The endothelium of the capillaries, contrary to Foot, who believed the epithelioid cells of the lung tubercle and large exudate cells of the exudative phthisis originated from capillary endothelium, does not play any rôle. The epithelium is of no importance either, as the alveolar wall is not provided with any special "respiratory" epithelial layer, except the nonnucleated plates.

Viability of Mycobacterium Tuberculosis.—*Mycobacterium tuberculosis* in sputum exposed to direct sunlight and in a manner to simulate as closely as possible actual community conditions, according to Caldwell, is viable for longer periods of time than is generally conceded. Guinea-pigs inoculated with sputum exposed to sunlight for 2, 3, 4, 5, 6, 12, 16, 20, 25, 30, 48 and 72 hours showed extensive tuberculous infections.

Journal of Laboratory and Clinical Medicine, St. Louis

11: 103-208 (Nov.) 1925

*Value of Leukocyte Fragility Test in Prognosis of Pneumonia. C. A. Pons and E. P. Ward, Philadelphia.—p. 103.
Organization of Metabolism Laboratory. W. H. Stoner, Philadelphia. —p. 113.
*Actions and Therapeutic Uses of Ethylisopropylbarbituric Acid. D. E. Jackson and L. A. Lurie, Cincinnati.—p. 116.
Effect of Heat on Heart Extract Used as Antigen in Wassermann Test for Syphilis. S. L. Leiboff, New York.—p. 122.
*Catalase Activity of Oral Mucous Membrane. T. Sollmann and R. L. Howard, Cleveland.—p. 130.
Potentiation of Procain Solutions. W. R. Meeker, Mobile, Ala.—p. 139.
*Effect of Chlorine Treatment on Leukocyte Count. M. Allen, Edgewood, Md.—p. 163.

Value of Leukocyte Fragility Test in Prognosis of Pneumonia.—Pons and Ward believe that the study of the fragility of the leukocytes is of interest and value in the course of some acute infectious diseases. It has been observed by them that the fragile cells increase prior to complications; that a high fragility is almost always associated with either a stormy course or a bad prognosis, particularly if accompanied by a normal or low leukocyte count. The curve of fragile cells does not depend on the leukocyte curve or necessarily correspond with subjective symptoms. In most cases this independence was gratifying, as it was a better indication of the outcome. A single high fragile cell count is of little significance, especially in the beginning of the disease. Treatment or some other factor may change the curve of the fragility of the leukocytes, and the outcome also. Pons and Ward were able to study the influence of mercurochrome-220 soluble in pneumonia. When it was beneficial, there was a slight rise in the fragile cell count followed by a sharp fall; thereafter the percentage of fragile cells remained low. Other times when mercurochrome was of only temporary benefit, there was a temporary tumble in the number of fragile cells; and thereafter the number of fragile cells increased rapidly. Drainage in infections, administration of serums in septicemias and of insulin in a lobar pneumonia complicated by diabetes, all produced a drop in the fragile cell count.

New Hypnotic: Ethylisopropylbarbituric Acid.—Jackson and Lurie call attention to the fact that this new hypnotic, in laboratory as well as in clinical tests, has shown superiority over the older hypnotics, both in safety and in effectiveness. The margin of safety between the therapeutic dose and lethal dose is very great. Furthermore, no untoward effect on the heart, lungs or kidneys has been observed. In addition,

it produced a sleep which approximates normal sleep very closely, and without the usual feeling of lassitude and heaviness of the following day, a condition that is so characteristic of other hypnotics.

Catalase Activity of Oral Mucous Membrane.—An index of the catalase activity of the oral mucous membrane was obtained by Sollmann and Howard by determining the rate of decomposition of hydrogen peroxid under standardized conditions. Clinical conditions of the mouth classed as "very bad" give values generally above 4 cc. for the first and 3 cc. for the second determination, with the median value of 6.0 for the first and 5.0 for the second determination. The catalase index of a given individual varies somewhat from day to day, for reasons that are not yet explained. It is not affected by increasing or decreasing the flow of saliva (chewing gum, atropin), by smoking, or by "sore throat."

Effect of Chlorine Treatment on Leukocyte Count.—In 68 per cent of the cases of cold or mild influenza treated with chlorine, Allen says, the second count, that immediately following the exposure, was lower than the initial count; in 27 per cent of the cases it was higher; in 4 per cent it was the same as the first count. In 89 per cent of the cases, the leukocyte counts were made on patients taking the treatment in the afternoon. The counts made in the morning showed a drop in only 50 per cent of the cases. This suggests that the larger number of decreased counts in the afternoon might be due to a natural subsidence from an initial digestive leukocytosis. Forty-eight per cent of all counts, however, showed a drop of more than 1,000, which should eliminate physiologic factors. It was in the cases showing a leukocytosis originally that the fall was most marked, and in 85 per cent of the cases showing an original count of more than 10,000, there was a decrease, averaging 4,000. The differential count was only slightly changed, twenty-seven cases showing a rise in polymorphonuclears, twenty-three cases showing a drop, and three showing no change in polymorphonuclears. In twenty-five cases of whooping cough, twenty, or 80 per cent, showed a decrease in total leukocytes after the hours of treatment. The average count in these cases was 20,465 before treatment and 15,920 after treatment, or an average decrease of 4,545. Of these cases, seventeen showed a drop in polymorphonuclear leukocytes averaging 8.9 per cent.

Laryngoscope, St. Louis

35: 813-882 (Nov.) 1925

Congenital Malformation and Absence of Ear. J. C. Beck, Chicago.—p. 813.
Causes of Failure in Corrective Rhinoplasty. J. Maliniak, New York.—p. 832.
Significance and Prevention of Blindness Due to Intranasal Disease. M. J. Gottlieb, New York.—p. 844.
Ligature Set for Tying Blood Vessels in Pharynx and Other Deep Cavities. W. Molt, Indianapolis.—p. 853.
Tobacco and Eighth Nerve Lesions; Nine Cases. V. K. Hart, Statesville, N. C.—p. 855.
Case of Pneumo-Mastoid. L. K. Guggenheim, St. Louis.—p. 868.
Total Destruction of Esophagus by Nitric Acid. C. Ide, Long Beach, Calif.—p. 869.

Maine Medical Association Journal, Portland

16: 195-216 (Nov.) 1925

Rôle of Insulin in Carbohydrate Metabolism. C. H. Best, Toronto.—p. 195.
Dietetic Management of Diabetes Mellitus. E. R. Blaisdell, Portland.—p. 202.
Community Budget for Control of Tuberculosis. P. P. Jacobs.—p. 207.
Typhoid Carrier: Digitalis Poisoning; Case. P. E. Gilbert, Madison.—p. 208.

Medical Journal and Record, New York

122: 573-640 (Nov. 18) 1925

Carcinoma of Rectum and Carcinoma in General. J. R. Pennington, Chicago.—p. 573.
Dyspepsias from Ileocecal Region. R. R. Moolten, New York.—p. 579.
Pernicious Anemia. L. E. Croft, Los Angeles.—p. 581.
Postoperative Parotitis. J. K. Narat, Chicago.—p. 582.
Modern Treatment of Fractures of Lower End of Radius. R. M. Carter, Green Bay, Wis.—p. 584.
Cholecystitis During Pregnancy. H. Koster, Brooklyn.—p. 587.
Visualization of Gallbladder with Sodium Tetra-Iodophenolphthalein. I. O. Palefski, New York.—p. 590.

New York State Journal of Medicine, New York

25: 1055-1092 (Dec. 1) 1925

Present Status of Surgery for Benign Ulcer of Stomach and Duodenum. C. H. Peck, New York.—p. 1055.
Psychic Factors in General Medical Diagnosis. L. F. Barker, Baltimore.—p. 1058.
Infections of Urinary Tract in Children. H. G. Bugbee, New York.—p. 1063.
Influence of Sex on Constitutional Factor in Disease. G. Draper, New York.—p. 1065.
Correction of Nasal Deformities. W. W. Carter, New York.—p. 1070.

Ohio State Medical Journal, Columbus

21: 893-960 (Dec. 1) 1925

Heliotherapy in Tuberculosis. C. L. Hyde, Akron.—p. 893.
Pelvic Infections. F. Fletcher, Columbus.—p. 898.
Dacryocystorhinoplasty: Mosher's Modification of Toti Method. S. B. Cowen, Cleveland.—p. 902.
Hemorrhage in Pregnancy, Labor or Puerperium due to Rupture of Uterus, Tumors or Carcinoma. W. D. Porter, Cincinnati.—p. 905.
Psychiatric Study of Summit County, Ohio. J. C. Hassall, Cuyahoga Falls.—p. 909.
Medical Inspection of Rural Schools. C. E. Huston, Paulding.—p. 916.
Closed and Open Method in Suprapubic Prostatectomy. H. A. Springer, Cincinnati.—p. 916.

Public Health Journal, Toronto

16: 501-550 (Nov.) 1925

Hieronymus Fracastorius: His Works on Syphilis. W. R. Riddell.—p. 501.
Generalized Public Health Nursing. F. H. M. Emory.—p. 509.
*Scarlet Fever Immunization: Its Effect on an Epidemic. J. Miller.—p. 517.
Hospital as Public Health Center. R. E. Wodehouse.—p. 519.
Prevention of Diphtheria and Scarlet Fever. A. L. McKay and D. T. Fraser.—p. 521.

Results of Scarlet Fever Immunization.—Scarlet fever has been endemic in Kingston for the last four years. It is estimated that 2,000 children of school age have had scarlet fever during that period. The disease varied greatly in virulence. In 1922 and 1923, many cases were so mild that they escaped medical attention entirely. It is noteworthy, however, that over 2 per cent of admissions to the City Isolation Hospital for scarlet fever terminated in death. The situation became more serious during January and February, 1925, when there was approximately one case per diem reported to the medical health officer. Inoculation was begun, February 24. In all, 1,155 children were inoculated, and in not one case was a severe reaction reported. The immunization of the nursing staff of both hospitals was also undertaken. It was soon found that the reaction in the case of adults tended to be much more severe. Three nurses developed pronounced scarlet-like rashes, with elevated temperature and malaise. The number of cases decreased immediately on the commencement of inoculation.

South Carolina Medical Association Journal, Greenville

21: 259-286 (Nov.) 1925

Roentgen-Ray and Radium Treatment of Cancer. F. D. Rodgers, Columbia.—p. 260.
Diphtheria. M. W. Beach, Charleston.—p. 264.
Obstetric Analgesia. J. D. Guess, Greenville.—p. 267.

Southwestern Medicine, Phoenix, Ariz.

9: 415-456 (Nov.) 1925

Roentgen-Ray Study of Right Upper Quadrant Lesions. P. R. Casellas, El Paso, Texas.—p. 415.
Fractures of Elbow. E. J. Cummins, El Paso, Texas.—p. 418.
Ultraviolet Rays. W. Wilkinson, Phoenix, Ariz.—p. 421.
Life Extension. G. S. Luckett, Santa Fe, N. M.—p. 430.
Medical and Dental Officers Reserve Corps. W. R. Jamieson, El Paso, Texas.—p. 431.

Tennessee State Medical Association Journal, Nashville

18: 151-184 (Oct.) 1925

Parathyroid Therapy in Spastic States. W. K. Sheddan, Columbia.—p. 151.
Some Preoperative Factors Influencing Mortality of Prostatectomy. J. E. Hall, Nashville.—p. 156.
Status of Prostatectomy. L. B. West, Chattanooga.—p. 160.
Esophagoscope as Aid in Diagnosis. R. McKinney, Memphis.—p. 169.
First Aid to Injured Eyes. D. Potter, Nashville.—p. 171.
Crippled Hand in Childhood. J. C. Burch, Nashville.—p. 174.
Traumatic Synovitis of Knee. H. Cox, Nashville.—p. 178.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Surgery, Bristol

13: 201-404 (Oct.) 1925

XVIII. Bryant's Iliofemoral Triangle. D. Power.—p. 201.
*Osteitis Deformans (Paget's Disease); Relation to Osteitis Fibrosa and Osteomalacia. R. L. Knaggs.—p. 206.
*Two Cases of Cystadenoma of Pancreas; Probable Relationship to Polycystic Conditions Found in Other Viscera. E. R. Carling and J. A. B. Hicks.—p. 238.
Pathology of Hydronephrosis. H. P. W. White.—p. 247.
Tumors of Testicle; Spermatocytoma Group. F. G. Bell.—p. 282.
*Lymphaticostomy for Peritonitis. C. H. Whiteford.—p. 302.
*Lymphaticostomy in Peritonitis. A. Cooke.—p. 309.
*Hypophysial Adenoma. N. M. Dott and P. Bailey.—p. 314.
*Right Duodenal Hernia. F. R. Brown.—p. 367.
*Some Unusual Manifestations of Spread by Implantation of Papillomas of Urinary Tract. B. C. Maybury and S. C. Dyke.—p. 377.
Strangulated Femoral Hernia Associated with Appendix Abscess in Hernial Sac. N. Hodgson.—p. 386.
Two Cases of Hernia Through Transverse Mesocolon. F. Strong and G. C. E. Simpson.—p. 387.
Unusually Large Fibro-Adenoma of Breast. W. E. Tanner.—p. 393.

Osteitis Deformans; Osteitis Fibrosa; Osteomalacia.—The relationship of these three conditions is epitomized by Knaggs as follows: Certain diseases of the bones owe their origin to the action of toxins—probably those of metabolic or intestinal origin. Predisposing to their development an idiosyncratic susceptibility on the part of those who suffer from them may be assumed. The ability of the bones to resist toxic influences is a factor of great importance. The relative intensity of that resistance can be roughly gauged by the extent and character of the reaction excited in the soft tissues of the affected bones. If the vitality is good, the resistance opposed to the toxins may ward off harmful effects till the constitutional strength is reduced by age and disease. The reaction under these circumstances is strong, and the resulting affection takes the form of osteitis deformans. On the other hand, if vitality is feeble the disease appears earlier—in childhood, adolescence, or early manhood. The reaction is fair but not so vigorous as in osteitis deformans. The form the disease then assumed is that of osteitis fibrosa. Lastly, when owing to the severe depression of the patient's vitality, usually by untoward circumstances, the power to react is absent, osteomalacia develops.

Cystadenoma of Pancreas.—Pancreatic cysts, polycystic kidneys and cysts of the liver and spleen are explained by Carling and Hicks by assuming the inclusion of isolated portions of the wolffian body either in the enteric buds forming the liver and pancreas in the embryonic spleen as it develops in the ventral mesogastrium, or of that part of the intermediate cell mass in which the kidney forms. In the embryo these organs all arise in the immediate vicinity of the wolffian body.

Lymphaticostomy for Peritonitis.—Whiteford cautions against too ready acceptance of lymphaticostomy as a means of treating peritonitis. He says that much more clinical experience with lymphaticostomy must accumulate before the value and risks of the operation can be decided.

Lymphaticostomy in Peritonitis.—Cooke reports four cases in which this operation was performed. In one case recovery ensued as a result of lymphaticostomy. One patient died of pneumonia and general exhaustion seventeen days after lymphaticostomy; and one patient recovered from all acute symptoms and when convalescent died on the fifteenth day, of pulmonary embolism.

Hypophysial Adenoma.—A clinicopathologic study made by Dott and Bailey of 162 examples of pituitary adenoma shows that three fairly definite types of tumor can be recognized histologically and that they represent more or less definite clinical syndromes. The syndrome of acromegaly corresponds with the chromophil adenoma, that of hypopituitarism with a chromophobe adenoma, and the mixed syndrome with a mixed type of adenoma. Case histories are given to illustrate the several syndromes. Though the knowledge of the physiologic action of the pars distalis is in its infancy, it may be asserted not only that it exerts an influence on growth, but also that the eosinophilic cells are the ones chiefly concerned. In the absence of an increase in the number of these cells, evidences of overgrowth of one sort or another have not been found to occur.

Right Duodenal Hernia.—Brown reports a case of right duodenal hernia in which operation was successfully done. It is said to be the fourth case of recorded recovery in this condition. This very rare condition has also been described as right paraduodenal hernia, and as hernia of the mesentericoparietal fossa of Waldeyer.

Spread by Implantation of Urinary Tract Papilloma.—Two cases illustrating unusual manifestations of the power of spread by implantation possessed by papillomas of the urinary tract are reported by Maybury and Dyke. In the first case the original papilloma occurred in the renal pelvis, and implantation took place on the walls of the resulting hydronephrosis. Removal of the affected kidney together with the tumor was followed by the rapid growth of a malignant tumor in the remaining kidney. The urine in this case showed much pus in the absence of any infective process. In the second case, after a simple vesical papilloma was removed, three "graft-recurrences" occurred in three separate places in the abdominal wall shortly after the operation. It is suggested that all three arose from portions of the original tumor accidentally implanted at the first operation. The primary tumor was histologically nonmalignant, but the successive recurrences showed a steady progress toward malignancy. It is suggested that the course of these cases offers an illustration of the inhibitory effect exercised by the presence of a primary tumor in the tissues on the rate of growth of secondaries and their degree of malignancy.

China Medical Association Journal, Shanghai

39: 855-974 (Oct.) 1925

Collected Anthropometric Data on Chinese. P. H. Stevenson.—p. 855.
*Primary Tuberculosis of Tonsils and Adenoids Among Chinese. J. H. Korns.—p. 899.
Peanut Bronchitis in China; Case. A. M. Dunlap.—p. 903.
*New Antiscarlatinal Serum. S. P. Chen.—p. 911.
Life Cycles of Two New Heterophyid Flukes Occurring in Chino-Japanese Areas. E. C. Faust and M. Nishigori.—p. 914.
Fistula-in-Ano. T. Bliss.—p. 916.
Treatment of Postoperative Acidosis with Insulin and Glucose. J. C. Lawyney, L. Van and M. E. McDaniel.—p. 924.

Primary Tuberculosis of Tonsils and Adenoids Among Chinese.—In a series of seventy-four tonsillectomies and adenoidectomies among Chinese and non-Chinese patients, one patient was shown to have tuberculosis of the adenoids with no microscopic evidence of tonsillar involvement, and one, tuberculous infection of the tonsils. In forty-six tonsillectomies and adenoidectomies among Chinese, one patient had tuberculosis of the adenoids, and shortly after operation had a discharging sinus from the cervical lymph nodes which contained tubercle bacilli. In other words, the forty-five Chinese patients, without tuberculosis of the cervical lymph nodes, showed no tuberculosis of the tonsils or adenoids. While this series is small, Korns believes it would indicate a lower incidence of primary tuberculosis of the tonsils than is found in the West. The fact that Chinese do not drink cow's milk may be suspected as being responsible for this difference.

Antiscarlatinal Serum.—Throat swabs taken by Chen in severe cases of scarlet fever invariably yielded *Streptococcus hemolyticus*. A serum was prepared with this organism, and nineteen strains were selected and used. This serum appeared to have a decidedly curative effect in cases presenting a severe form of scarlet fever, especially those which a long experience considered as likely to end fatally without it. However, the serum must be administered early in the disease. It is said that although unconcentrated, the serum is required in a much smaller quantity than any of the other antiscarlatinal serums now available. This serum has not been used in the cases showing a milder form of the disease. In some cases showing a severe form it has the effect of bringing the temperature down by crisis. It appears to benefit erysipelas developing in the course of scarlatina by cutting short the course of the disease.

Journal of Okayama Medical Society, Okayama, Japan

No. 429: 999-1100 (Oct. 31) 1925

Milk-Spots, "Taches Laiteuses," in Omentum. Y. Hamazaki.—p. 999.
Effect of Xanthin Derivatives on Muscle of Rana Temporaria and Rana Esculenta. Y. Takahashi.—p. 1020.

Journal of Tropical Medicine and Hygiene, London

28: 377-392 (Nov. 2) 1925

*Phosphorus in Treatment of Various Diseases. A. Castellani.—p. 377.
Treatment of Amebic Dysentery with Stovarsol. S. C. Jamison.—p. 378.
*Fatal Case of Bacillary Dysentery in Nigeria. A. Connal and E. C. Smith.—p. 379.

Use of Phosphorus in Therapy.—Castellani speaks well of the use of phosphorated oil, externally and subcutaneously, in the treatment of granuloma inguinale, rickets, beriberi and osteomalacia. It seems to be useful as an adjuvant of quinin in certain cases of chronic malaria. Phosphorus is a powerful drug and its delayed action on the liver especially should be kept in mind; it should therefore be given with care and every precaution should be taken. Castellani has used 5 minims (0.3 c.c.) of pure oil locally, and injects ½ minim (0.03 c.c.) in 10 minims (0.6 c.c.) of almond oil subcutaneously.

Dysentery Bacilli in Gallbladder.—Connal and Smith report the clinical history, together with the bacteriologic and postmortem findings, in the first case of bacillary dysentery reported from Nigeria. The recovery of the bacilli from the fluid in the gallbladder leads to a suspicion that this organ may, as in typhoid, harbor the organisms for a considerable time (bile carriers). The condition of the kidneys and other organs examined points, without doubt, to a generalized blood infection of a severe nature, with relatively mild local involvement of the colon.

Lancet, London

2: 953-1002 (Nov. 7) 1925

Management of Head Injuries. W. Trotter.—p. 953.
III. Intracranial Tumors and the Surgeon. H. Cushing.—p. 956.
Diphtheria Immunization in Metropolitan Borough. C. W. Hutt.—p. 962.
*Efficacy of Tryparsamide in Cure of African Sleeping Sickness. C. C. Chesterman.—p. 965.

Tryparsamide in Cure of Trypanosomiasis.—Cases of African sleeping sickness treated with tryparsamide originally by Pearce and later observed by van den Branden and van Hoof, and cases by the last two workers alone at the laboratory of Leopoldville, afford the very satisfactory figures of 100 per cent. cure of early cases, with unaltered cerebrospinal fluid. Chesterman reports a similar success in five such cases, noted for from three and a half months to one year after treatment.

Medical Journal of Australia, Sydney

2: 497-520 (Oct. 24) 1925

*Daughter Cyst Formation in Hydatid Disease. H. R. Dew.—p. 497.
Hydatids of Lung. F. D. Bird.—p. 505.
*Preanemic Combined Degeneration of Cord. W. Evans.—p. 508.
Cesarean Section on Account of Imperforate Anus with Rectum Discharging into Vaginal Fourchette. P. L. Hipsley.—p. 509.

Daughter Cyst Formation in Hydatid Disease.—Dew asserts that the occurrence of daughter cysts in hydatid disease means that there has been some complication to the cyst. The prognosis in these cases is much worse and much more uncertain than in simple cysts. All hydatid cysts should be operated on as soon as they are diagnosed, as they are all potentially dangerous, and the longer they are left, the more likely are complications to occur. The treatment of simple cysts by the French method of injecting liquor formaldehydi before opening rests on a sure foundation, but the method is much less rational in cases containing daughter cysts. In the treatment of hydatid of the liver, any cyst containing daughter cysts should be suspected because of the practical certainty of previous biliary contamination. The presence of omental hydatids, especially if they are multiple, should at once lead to an examination of the pelvis and of the liver. In the latter, the original cyst that may have given rise to the secondary cysts should be looked for carefully and all scars and depressions explored. In all these cases a history of previous abdominal pain should be sought. Whenever an intrathoracic cyst is found to contain daughter cysts, an hepatic origin should be suspected and this should lead to an investigation of the diaphragmatic region.

Preanemic Combined Degeneration of Cord.—The absence of free hydrochloric acid in the gastric juice, the response to the van den Bergh test, the presence of numerous macrocytes and anisocytosis, with comparatively high color index, in conjunction with the changes in the posterior columns of the cord, seem to establish the diagnosis of preanemic combined degeneration in Evans' case. The only other possibility appears to be tabes dorsalis, and the presence of knee jerks and active pupil reflexes, and the failure to react to the Wassermann test with such definite cord changes are strongly against this diagnosis. The patient had been treated with large doses of free hydrochloric acid and had very definitely improved as regards both the muscular sense and the power of walking. An interesting fact was that the patient's sister had had a fractional test meal done, which revealed complete absence of hydrochloric acid.

Medical Journal of South Africa, Johannesburg

20: 313-346 (June) 1925

*Congenital Cardiac Anomalies. B. G. v. B. Melle.—p. 315.
Sterility in Women. G. Lange.—p. 318.
*Anilin Dyes in Prevention of Infection of Wounds. E. L. Ferguson.—p. 327.

Congenital Cardiac Anomalies.—Melle's patient asserted that during the third month of her pregnancy she was greatly frightened by an accident occurring to a man with a cleft lip. Her baby was born with a complete cleft palate and harelip, and the feet were in equinovarus position. The heart lay almost horizontally in the thorax. It was almost square; the right side was dilated and somewhat hypertrophied. The ductus arteriosus was widely patent, and the left pulmonary artery appeared to arise from it; the lumen of the ductus was equal to the lumina of the two pulmonary arteries. The great vessels of the heart appeared to be normal in position, but the isthmus of the aorta, i. e., the part between the left subclavian artery and the ductus, was markedly stenosed and showed a peculiar twisting of the vessel wall, thus decreasing the lumen still further. The valvular orifices were normal, there being no evidence of stenosis or atresia of the pulmonary valve. The interventricular septum was complete. However, there was a marked defect in the interauricular septum. The other organs were normal, apart from much congestion, and there was only partial expansion of the lungs, which, however, floated when placed in water.

Antiseptic Value of Crystal Violet and Brilliant Green.—Ferguson reports very good results from the clinical and experimental use of an antiseptic solution consisting of 1 per cent. of equal parts of crystal violet and brilliant green sulphate, zinc free, dissolved in 35 per cent. of 95 per cent. alcohol and 65 per cent. of water. The Rideal-Walker phenol coefficient of the blue dye is 6.4. It was found to be far superior to iodin.

South African Medical Record, Cape Town

23: 421-444 (Oct. 10) 1925

Cerebrospinal Meningitis. C. Porter.—p. 422.
*Simplified Clinical Method for Estimation of Sugar in Blood. A. D. Stammers.—p. 426.
Bailliart's Instruments Used for Estimating the Elasticity of Small Arteries. A. Verwey.—p. 427.
Retinal Disease Associated with Streptococcus Infection. D. J. Wood.—p. 431.

Simple Examination of Blood Sugar.—The principle of this test is said by Stammers to be as follows: The proteins of the blood are precipitated by heating in the presence of acid sodium sulphate and treatment with dialyzed iron. An aliquot part of the protein free filtrate is boiled with methylene blue in alkaline solution. The sugar in the filtrate reduces some or all of the methylene blue to methylene white, and from the time taken to effect removal of the blue color the amount of sugar present in the filtrate may be deduced. A large number of tests have been carried out to determine whether the reduction of the methylene blue is strictly quantitative, and it has been found that such is the case, within the limits stated, which are sufficiently wide for practical purposes.

23: 445-472 (Oct. 24) 1925

Leprosy. H. F. Sheldon.—p. 447.
*Diffraction in Biologic Structures. A. Pijper.—p. 453.
Severe Case of Lobar Pneumonia Successfully Treated with Sodium Nucleinate. F. Daubenton.—p. 463.
Case of Hypopituitarism. V. C. Bensley.—p. 463.

Diffraction in Biologic Structures.—The principles underlying the use of bacillary surface growths as diffraction gratings are discussed by Pijper. The technic of measuring the diameter of bacilli by means of their diffraction spectrums is indicated. The diffraction method of measuring the diameter of bacilli shows that the average diameter of the individuals of a given strain constitutes a biologic characteristic and is not subject to variation. The members of the coli-typhoid group show important differences in diameter. Friedberger's observations on the separation of bacteria by means of their different capillary ascent in filter paper are explained on the basis of their difference in diameter. Suspensions of red blood cells can be used as diffraction gratings. Blood smears and these gratings produce spectrums, from the size of which the average diameter of the red cells constituting the grating can be calculated. The results are particularly accurate, because the spectrum to be measured can be made very large, and because the gratings consist of very large numbers of cells. The average diameter of many millions of red cells in a blood smear can thus be estimated by a single measurement and a single calculation. Pernicious anemia is characterized by anisocytosis and an increase in the average size of the red cells. Smears from such cases used as diffraction gratings therefore should produce smaller and paler spectrums than normal blood. This is actually found to be so, and no other anemia was found to produce similar spectrums. It follows that by means of the diffraction method of measuring red blood cells, the diagnosis of pernicious anemia can be made at a glance. In a general way, Price-Jones' findings of a diurnal change in the diameter of red blood cells can be confirmed by the diffraction method.

Annales de l'Institut Pasteur, Paris

39: 789-874 (Oct.) 1925

Research on the Bacteriophage. E. Wollman.—p. 789.
The Filtrable Microbes of Influenza and Colds. L. Boez.—p. 833.
Lesions Produced by Bacillus Histolyticus. D. Combiesco.—p. 855.
*Bacteriolysis of the Gonococcus. A. Scaltritti.—p. 865.

Lytic Action of Serums on Gonococci.—Scaltritti's research demonstrated that serums from various animals refractory to gonococcus infection exert a rapid lytic action on the gonococcus. The action is different in different species; being, for instance, weaker in the guinea-pig and very intense in cattle. All strains of gonococci seem to be equally sensitive to the animal serums. The peritoneal fluid of guinea-pigs usually shows a pronounced bacteriolytic action. Heat destroys the bacteriolytic potency of the active serums. After heating to 57 C. for thirty minutes, they no longer killed the gonococci. Human serum did not display any bactericidal action on the gonococcus. These facts may possibly be utilized in treatment of various gonococcus infections.

Archives de Médecine des Enfants, Paris

28: 665-728 (Nov.) 1925

*Dactylitis from Congenital Syphilis. P. Lereboullet et al.—p. 665.
*Signs of Tuberculous Meningitis. V. Mikulowski.—p. 675.
*Uric Acid in the Cerebrospinal Fluid. P. Baumritter.—p. 681.
Emotions in Children. R. Benon.—p. 686.
*Scurvy in Infants. J. Comby.—p. 689.
Backward Mental Development of Malay (not Mongolian) Type. F. Naville and R. de Saussure.—p. 694.
Pseudomegacolon in Child, Aged 4. P. Bézy.—p. 698.
Nature of Ozena. J. Comby.—p. 702.

Syphilitic Dactylitis.—The young infant in Lereboullet, Saint-Girons and Gournay's case presented a painful enlargement of the phalanges of all but two of the fingers. Roentgen-ray examination revealed similar lesions of the long bones in the upper and lower limbs. The clinical picture and Wassermann test corroborated the syphilitic origin of the affection. There were also signs of rickets. Remarkable results were obtained with mercury inunctions. This osteoperiostitis from congenital syphilis may persist interminably in untreated cases, and, exceptionally, may entail suppuration. Instances in which only a few bones are affected may be confused with tuberculous spina ventosa, but with this the skin and joints are involved and there is generally suppuration. This syphilitic polydactylitis may develop in older children and even in adults, and in several generations.

Diagnosis of Tuberculosis in Young Children.—Mikulowski lists the methods and signs which may aid in the differential diagnosis of tuberculous meningitis in young children. He recalls, among others, Brudzinski's neck sign and contralateral reflex. The neck sign appears earlier, and is more constant than the Kernig and Babinski's signs. The neck sign was positive in 100 per cent of his cases, the two other signs only in 45 or 50 per cent. He points also to Brudzinski's cheek sign, consisting in the lifting of the hands, with the elbows flexed, on bilateral pressure below the zygomatic process; also the pubis sign, drawing back the legs when compression is applied to the pubis. These two phenomena can be elicited before any other signs of tuberculous meningitis become manifest.

Uric Acid in the Cerebrospinal Fluid in Meningitis.—Baumritter applied in thirty-two cases Grigaut's method for determination of the uric acid in the cerebrospinal fluid. The amount was not increased in most of the cases with tuberculous meningitis. A considerable increase of uric acid was manifest in epidemic cerebrospinal meningitis.

Scurvy in Infants.—Comby's cases were in two female and a male infant that had been fed with sterilized, condensed nonsweetened milk; also with homogenized milk. The children recovered after fresh milk and orange or lemon juice had been prescribed. Comby states that in ninety-two cited cases, homogenized milk could be incriminated in fifty-six instances; sterilized milk in fourteen. The disease occurred mostly at the age between 9 and 12 months. Hematuria was manifest in three; pseudoparaplegia dolorosa in ninety-one; purpura and ecchymoses in eleven; also a subperiosteal hematoma in eleven. Ecchymoses of the gum were absent in twenty-seven. Rickets was manifest in more than half of all the patients.

Bulletin de l'Académie de Médecine, Paris

94: 1007-1033 (Nov. 17) 1925

*Diabetes in the Pregnant. Labbé and Couvelaire.—p. 1016.
*Removal of Tumor of Optic Nerve. Rollet.—p. 1023.
*Nevocarcinoma of the Conjunctiva. E. Valude.—p. 1025.
Physical Training of Children. M. Boigey.—p. 1026.
Medical Surveillance of Physical Therapy. M. Boigey.—p. 1030.

Insulin in Treatment of Diabetes in Pregnant Women.—Labbé and Couvelaire treated a pregnant woman with a severe form of diabetes. Under appropriate diet and insulin (daily 50 units) the condition of the patient improved; the gestation came to full term, ending in normal childbirth. The diabetes then subsided to its previous moderate form.

Extirpation of Tumors of Optic Nerve with Conservation of the Eye.—Rollet describes his technic enabling him to remove the total orbital length of the optic nerve in two patients, without damaging the eyeball or orbit, and even without visible scar of the skin. Both cases presented an encapsulated sarcoma or cancer originating in the pia mater, involving the optic nerve. These meningoblastomas are not accompanied by metastasis, and an early intervention may prevent spreading to the brain. His patients were a young man and a girl of 8. There was no muscular paralysis and the cornea is still transparent.

Nevocarcinoma of the Conjunctiva.—Valude operated on a nevus of the conjunctiva, which had developed into carcinoma, in a young woman. In this case as well as in the five in the literature, the tumor was characterized by presence of the so-called nevus cells, which are of epithelial origin. No pigment could be detected in the tumor, and there was no tendency to invade the cornea and sclerotic.

Bulletins de la Société Médicale des Hôpitaux, Paris

49: 1445-1482 (Nov. 20) 1925

*Hypertrophic Osteo-Arthropathy and Hippocratic Fingers. Léri.—p. 1445.
*Absent Interauricular Septum. L. Zadoc-Kahn and J. Cousin.—p. 1446.
*Secondary Necrosis of the Liver. A. Cain and Boltanski.—p. 1450.
*Treatment of Pernicious Anemia. Emile-Weil and Stieffel.—p. 1454.

*Absorption of Oil in Subcutaneous Tissue. L. Binet.—p. 1458.
*Alternate Artificial Pneumothorax. Rist and Chabaud.—p. 1464.
*Recurring Cerebrospinal Meningitis. C. Zoeller.—p. 1473.
The Healed Lesions of Endocarditis. M. Renaud.—p. 1478.

Hypertrophic Osteo-Arthropathy and Hippocratic Fingers.—Léri agrees with Rist that hypertrophic osteo-arthropathy involves essentially the bone; while hippocratic finger involves exclusively soft tissues. The latter affection is chiefly due to vascular disturbances, and possibly also to certain toxins. He reports a case of hypertrophic osteo-arthropathy and one of hippocratic fingers, each in time subsiding without leaving a trace.

Congenital Heart Deformity.—Necropsy in Zadoc-Kahn and Cousin's case demonstrated the absence of the whole interauricular septum. Tachyarrhythmia, hippocratic fingers and generalized cyanosis had been the clinical manifestations. Nothwithstanding the grave deformity, the patient survived to the age of 31.

Hemorrhagic Necrosis of the Liver with Tuberculosis of the Lung.—In Cain and Boltanski's patient, who had succumbed to pulmonary tuberculosis, tuberculous nodules were found in the liver; also hemorrhagic spots with fragments of necrotic liver tissue. The tubercle bacillus could not be detected in the liver; the kidneys and suprarenals appeared intact. The case is considered as an instance of tuberculous hypersensitiveness in the liver, of the nature of allergy. Analogous lesions existed in Rist and L. Kindberg's case of hemorrhagic and necrotic nephritis, and such have been experimentally produced by Roemer.

Blood from Donor with Plethora in Treatment of Pernicious Anemia.—Emile-Weil and Stieffel used transfusions of blood from a donor with a tendency to obesity and plethora in treatment of a woman with severe anemia, aged 50. After four previous transfusions of normal blood, the patient's blood showed 1,300,000 erythrocytes, and 25 per cent of hemoglobin; but after four transfusions of the same quantity of the plethoric blood there were about 2,800,000 erythrocytes and 55 per cent of hemoglobin. After seven transfusions, the general condition had greatly improved. The blood of the woman donor did not show any marked changes after the withdrawal of 4 liters of blood within three months. The case seems to confirm the presence of hematopoietic substances in plethoric blood. No selection of donors has been made hitherto beyond the blood grouping.

Absorption of Oil Injected Subcutaneously.—Summarized in Paris Letter, p. 49.

Alternating Artificial Pneumothorax.—Summarized in Paris Letter, p. 50.

Case of Cerebrospinal Meningitis with Relapses.—The meningeal reaction in Zoeller's case lasted eight days. A relapse occurred twenty days later; still another after an interval of two and a half months. Signs of general infection, such as herpes zoster and purpura, accompanied the first two attacks of the disease; but no cocci could then be detected in the cerebrospinal fluid or blood. The meningococcus A was found only on the second relapse, which persisted for a month. The patient recovered under repeated punctures, serum and vaccine therapy. The amount of sugar in the cerebrospinal fluid was considerably increased during the first two attacks; during the third the percentage was different at the beginning and end of the puncture: 0.17 and 0.50 Gm., respectively. This fact must be kept in mind since the varying glucose content of the spinal fluid may be significant in development of cerebrospinal meningitis.

Clinique, Paris

20: 321-344 (Oct.) 1925

Slow Pulse with Digitalis Poisoning. H. Grenet.—p. 323.
Gastroptosis. V. Pauchet.—p. 326.
Three Cases of Epidemic Encephalitis. Larroussinie.—p. 332.
*A Specific Treatment of Tuberculosis. D. Hervouet.—p. 334.
Dementia Praecox Consecutive to Vaccination Against Typhoid. P. L. J. Charpentier.—p. 339.

Therapeutic Utilization of Antagonism Between Gout and Tuberculosis.—Hervouet noted that gout seemed to exert a favorable action on coexisting tuberculosis. As soon as elimination of nitrogenous substances was reduced under appropriate treatment of the gout, the tuberculous process flared up anew. Aggravation of the gouty condition induced amelioration of the tuberculosis. Research in this line indicated that creatinin, glycocoll and leucin seemed to be responsible for this phenomenon. He therefore prepared an isotonic aqueous solution of these substances, which he used in treatment of twenty-five patients. The first subcutaneous or intramuscular injections of 2 cc. of the solution were given at four day intervals and later, once a week. Series of ten injections were repeated after a two to four weeks' pause. No complications occurred with this solution, which is a kind of artificial serum. A general reaction in certain cases resembled the Herxheimer reaction. Fibroid forms of tuberculosis improved immediately, as also most nonfebrile manifestations of tuberculosis. The results seemed uncertain in the febrile cases. The treatment failed in tuberculosis associated with liver and stomach disturbances, and in cases complicated by gastro-enteritis.

Paris Médical

57: 437-452 (Nov. 28) 1925

Traube's Space in Congenital Gastroptosis. J. Tarruella.—p. 437.
Apparatus for Proctoscopy. R. Savignac.—p. 441.
*Test Diuresis in the Obese. P. L. Violle.—p. 444.
Heliotherapy in Laryngeal Tuberculosis. Kowler.—p. 447.

Fractional Test Diuresis in the Obese.—Violle comments on the instructive findings with test ingestion, fasting, of 200 cc. of water every half hour for two hours. Comparison with the standard findings of health shows the functional condition of various organs, and enables treatment in time to ward off serious injury. Treatment in such cases is usually addressed merely to the obesity as a whole.

Presse Médicale, Paris

33: 1553-1568 (Nov. 25) 1925

History of Research on Pancreatic Secretion. E. Hédon and E. Laguesse.—p. 1553.
*Postoperative Retention of Urine. L. Michon and Bouvier.—p. 1556.
Treatment of Arterial Hypertension. P. Pagniez.—p. 1558.

Treatment of Postoperative Retention of Urine.—Michon and Bouvier encountered thirty-four cases of retention of urine among 195 operations on the pelvis. Instillations into the bladder of glycerin with boric acid were made in twenty-two cases (10 to 20 cc. of a 10 per cent solution). The retention subsided immediately in eighteen cases; in seventeen one instillation sufficed; two were required only in one case. Four of six patients voided urine in from ten to sixty minutes after intravenous injection of hexamethylenamin (2 Gm.), the first day after the operation. Pituitary extract injected subcutaneously (1 cc.) brought about micturition in fifteen minutes in one, and three hours in another. It failed in the third patient. The authors assert that postoperative catheterization can be avoided since certain drugs have thus proved their reliability.

33: 1569-1584 (Nov. 28) 1925

*Venous Pressure in Tuberculosis. M. Villaret and M. Martiny.—p. 1569.
Central Pneumonia Spreading to Periphery. C. Roubier.—p. 1571.
*Hemoglobinuria in Acetic Acid Poisoning. J. Sklodowski.—p. 1573.
The Psychology of the Chinese Student. A. Legendre.—p. 1579.

The Venous Pressure in Pulmonary Tuberculosis.—Villaret and Martiny's conclusions are based on 200 observations. In acute exacerbations of pulmonary tuberculosis the venous pressure was high in the miliary form; it was little changed in splenopneumonia. High venous pressure with ulcerocaseous tuberculosis may reveal a previously unrecognized affection of the lymph glands, latent effusion, or tendency to hemoptysis. A high pressure accompanied fibroid or fibrocaseous tuberculosis. Measurement of the venous pressure should be made every two weeks; it may complete the auscultation and roentgen-ray findings, and is valuable in prognosis of the local process. An increase of the pressure indicates tendency to fibroid degeneration; a sudden rise points to the menace of hemoptysis. A tardy rise of the venous pressure in artificial pneumothorax, at the sixth or eighth insufflation, usually preceded phenomena of intolerance. The effect of an artificial pneumothorax may be demonstrated better thus than by the intrapleural hypertension from the gas, or by displacement of the heart.

Hemoglobinuria in Acetic Acid Poisoning.—Sklodowski refers to one personal and ten cited cases of acetic acid poisoning with manifest hemoglobinuria. He emphasizes that hemoglobinuria is a constant phenomenon in this poisoning; it appears within the first twelve hours, and is evident even in the benign form. The hemoglobinuria may aid in differential diagnosis from other poisonings.

33: 1585-1600 (Dec. 2) 1925

*Pathogenesis of Asthma. Daniélopolu.—p. 1585.
*Stricture of the Rectum. R. Bensaude and J. H. Marchand.—p. 1588.
Digitalin Treatment of Failing Heart. J. Surmont and A. Schfdrowitzky.—p. 1590.

Pathogenesis and Treatment of Asthma.—Daniélopolu reiterates that a paroxysm of asthma is induced by a predisposing as well as by a determining factor. The presence of a local lesion, of tuberculous or other nature, is an indispensable factor for occurrence of a paroxysm of asthma. The intrapulmonary or extrapulmonary lesion induces a predisposition to asthma, even in a nonvagotonic subject, by a mechanical or anaphylactic action. The exciting factor of inflammatory, reflex or mental origin, or anaphylactic shock provokes a paroxysm through the interference of the local factor. General amphotonia only enhances the predisposition to asthma from the local factor. The latter causes hypersensitization of the sensory and motor nerve terminals in the bronchi, or renders the lung the principal location of anaphylactic phenomena. Both mechanisms are frequently associated in asthma. Daniélopolu advocates the same operation which he applies for angina pectoris, namely, cervical sympathectomy (respecting the inferior cervical ganglion); severing of all filaments of the vagus and superior laryngeal nerve in the thorax; severing of the vertebral nerve and all the rami communicantes joining the inferior cervical ganglion and first thoracic nerve with the sixth, seventh and eighth cervical, also the first dorsal. Calcium chlorid, in a daily dose of 5 to 10 Gm., given for weeks, proved the best medical treatment. Quinin was effectual in one case. Autoserum or autohemotherapy may be useful sometimes.

Diathermy in Treatment of Stricture of the Rectum.—Bensaude and Marchand report five cases of inflammatory stricture of the rectum successfully treated by diathermy, after all other methods, even operation, had failed. A Hegar bougie served for the active electrode; used with twin tin disks, applied to the lumbar and the abdominal regions. A current of 3 amperes was employed for an exposure, lasting from twenty to thirty minutes. Diathermy was applied three times a week; after ten applications the patient rested for two weeks. The treatment was continued for a certain time after the largest dilator could be freely introduced into the rectum. Hemorrhages, occurring on the first exposures, ceased on the eighth or ninth. Medical or surgical diathermy, with high frequency currents, gave good results also in treatment of benign tumors and certain forms of rectitis.

Schweizerische medizinische Wochenschrift, Zurich

55: 1085-1104 (Nov. 26) 1925

*Hypochloremia in Sublimate Poisoning. F. Heim.—p. 1085.
Stimulating Irradiation of Ovaries. Mennet.—p. 1091.
*Optic Neuritis and Multiple Sclerosis. E. Friedinger.—p. 1093.
Hemoclastic Reaction in Prurigo. W. Brack.—p. 1097.
Treatment of Varicose Veins. R. Jung.—p. 1100.

Hypochloremia in Sublimate Poisoning.—Heim observed in his fatal cases of poisoning with mercuric chlorid a lower concentration of blood chlorids than in any other condition. The lowest percentage of sodium chlorid recorded was 0.21. Although there was no loss of chlorids by the urine, he believes that the kidney had lost its power of maintaining a high threshold for chlorids. Yet it is possible that a specific action of the poison on the membranes or on the physiochemical condition of the colloids of the blood, had taken place.

Optic Neuritis and Multiple Sclerosis.—Friedinger found only three cases of multiple sclerosis in twenty-six patients who had had retrobulbar neuritis of the optic nerve. She thinks that tuberculosis or scrofulosis plays a more important rôle in the etiology; the prognosis of these cases is not so grave.

Chirurgia degli Organi di Movimento, Bologna

9: 533-639 (Oct.) 1925

*Tuberculosis of the Foot. Vayola-Coco.—p. 533.
*Trauma of the Knee. G. Ferrarini.—p. 562.
*Sympathectomy for Leg Ulcers. G. Bonani.—p. 569.
Rupture of Biceps Cubiti. T. M. Biancheri.—p. 580.
Lisfranc's Dislocation. F. Francesconi.—p. 589.
*Central Dislocation of Femur. A. Jachia.—p. 605.
*Initial Manifestations of Tabes. R. Zanoli.—p. 613.
Fracture of Heel-Bone. A. Comolli.—p. 622.
Fibroma in Finger. A. Avoni.—p. 629.

Tuberculosis of the Foot at a Seashore Sanatorium.—Vayola-Coco expatiates on the great advantages of "heliomarine therapy" as it acts solely by stimulating all the natural reacting potencies. Of his eighty-five cases, 94 per cent. of the thirty-three patients with closed lesions were completely cured, and 63.24 per cent. of the fistulous cases. In only 1.48 per cent. of this group did the lesion continue a progressive course. The patients were in the sanatorium for an average of 365 days in the cured cases.

Fracture of Epicondyle at the Knee.—Ferrarini emphasizes the importance of distinguishing between the tearing loose of the muscle head and actual fracture of the epicondyle and other traumatic lesions. Detachment of the tendon of the adductor magnus is liable to entail serious disability, which is not the case with simple contusion and sprain of the knee. In his personal cases, the permanent disability from traumatic detachment of the adductors of the superior half of the epicondyle was officially estimated at 15 per cent. This separation of the muscle occurs from some sudden violent contraction of the adductors. As the disturbance from it is exclusively subjective, it invites errors in diagnosis and treatment.

Periarterial Sympathectomy in Treatment of Varicose Ulcers.—Bonani decorticated the femoral artery for a stretch of about 12 cm. in six cases of leg ulcers of seven to twenty years' standing. The roentgen rays showed the characteristic lesions that accompany grave varicose disturbances. In a seventh case, the neurotrophic process was on the foot. The age ranged from 57 to 75. In four the healing was complete, but it has proved permanent only in one case. In all the others the lesion recurred in a few days or months. The immediate results were good in all.

Bilateral Central Dislocation of the Femur.—The deformity in Jachia's case had developed during protracted puerperal infection. The woman had been in bed eleven months.

Joint Disease as Initial Manifestation of Tabes.—Zanoli lauds the instructive findings with roentgenography as exemplified in his two cases of knee disturbances following slight trauma. Destructive lesions rapidly developed in the knee or hip joint, but with total lack of subjective symptoms. The diagnosis of tabes was soon unmistakable.

Rivista di Clinica Pediatrica, Florence

23: 721-792 (Nov.) 1925

Mediastinal Pleurisy. G. Macciotta.—p. 721.
*Facial Phenomenon in Older Children. C. Lombardi.—p. 744.

Facial Phenomenon in Older Children.—Lombardi elicited the facialis phenomenon in 150 out of 819 not selected children between 3 and 10 years of age. She found in very few of them a galvanic overexcitability and other signs of latent tetany. The facialis sign indicates in the older children only an increased irritability of the nervous system.

Anales de la Facultad de Medicina, Montevideo

10: 545-620, 1925

*Flexion of the Gallbladder. García Lagos et al.—p. 545.
*Short Small Intestine. L. Mérola.—p. 552.
Case of Volkmann's Contraction After Ligation of Axillary Artery. C. V. Nario.—p. 560.
Vegetative Disturbances in Children with Asthma. V. Zerbino.—p. 578.
Treatment of Tuberculous Hemoptysis. A. Nario.—p. 594.

Congenital Deformities of the Gallbladder.—García-Lagos, Ugón and Cantón describe a case in which the gallbladder was much enlarged and shaped like a retort with a long beak. It had caused no disturbance in the healthy young man until sudden sharp pains in the lumbar region developed, spreading forward and to the shoulder, and a hard tumor was pal-

pated in the right anterior flank. The tumor proved to be the gallbladder, the entire body of the organ enclosed in the hepatoduodenal ligament. All disturbances ceased after the removal of the gallbladder.

Abnormally Short Small Intestine.—In Mérola's case the anomaly was accidentally discovered during an operation for abdominal injury from an automobile accident in the man aged 60. The entire small intestine measured only 80 cm. but it was dilated in parts.

Archivos Arg. de Enf. del Ap. Digestivo, Buenos Aires

1: 1-188 (Oct.) 1925

Stenosis from Congenital Periduodenitis. P. Duval and J. C. Roux.—p. 7.
*Basal Metabolism with Gastric Cancer. C. Bonorino Udaondo et al.—p. 13.
*Giardiasis of Biliary Passages. M. R. Castex and J. C. Galán.—p. 30.
Duodenal Ulcer. Del Valle, Jr.—p. 78.
Retractile Mesenteritis in Adult. P. Escudero and E. V. Merlo.—p. 95.
Case of Supramesocolonic Periduodenitis. T. Martini.—p. 107.
Insufficiency of Ileocecal Valve. M. R Castex et al—p 124.
Infected Gastric and Duodenal Ulcers. A. Ceballes.—p. 159.

Basal Metabolism with Gastric Cancer.—The conclusions from study of eighteen cases of malignant disease of the stomach are that although the basal metabolism is always low in these patients, this should be ascribed to the lack of appetite and defective nutrition rather than directly to the cancer itself.

Giardiasis of the Biliary Passages.—Castex and Galán give the details of eleven cases. Of all the various drugs tried, neo-arsphenamin by the vein proved most effectual. Even when the parasites were not entirely expelled, the number was markedly reduced in the stools as well as in the fluid obtained by the duodenal tube. Constipation was found in 54.5 per cent and digestive disturbances connected with the inflammatory condition of the duodenum were noted in 72.7 per cent. The liver was enlarged in 63 per cent and there were nervous symptoms of toxic origin in the same proportion, and general toxemic phenomena in 81.8 per cent.

Archivos Españoles de Pediatría, Madrid

9: 513-576 (Sept.) 1925

*Asthma in Children. L. Morquio.—p. 513.
*Erythromelalgia in Children. Navarro and Sas.—p. 521.
*Arsphenamin in Chorea. L. Herrera.—p. 527.

Asthma in Children.—Morquio comments on the prevalence of asthma in his country (Uruguay). It affects all ages, including young infants, but the most common beginning is in the second year, during an attack of bronchitis. The attacks are most common with abrupt changes in the weather; no connection with adenoids is apparent, but he has found asthma in close relatives in 80 per cent of the cases. It belongs to the pathologic group of sluggish metabolism, the gouty tendency. The most tenacious cases have been those accompanying eczema. A change to the seashore benefits some cases remarkably and aggravates others. One child, born in London, developed asthma for the first time when brought to Montevideo, but had no further attacks when returned to London. Hygiene and prophylaxis are the main reliance. Breathing exercises help in some cases, especially after removal of adenoids; during the attacks, aconite and atropin, sometimes, epinephrin. In prophylaxis, he gives 0.3 to 0.5 Gm. of potassium iodid daily, alternating with organotherapy, especially pancreas extract.

Erythromelalgia.—Navarro and Sas add another to the 159 cases of erythromelalgia they have found on record. Only eight of the total were in children, including their personal case in a boy of 7. Pains in the feet at night had been the first symptom. In the course of four years they had become almost continuous, with only twenty minute remissions for the last few months. The boy died then from typhoid. He had seemed otherwise healthy, and had only a history of whooping cough.

Arsphenamin in Chorea.—The Wassermann test was negative in the nine cases of chorea reported by Herrera as cured by from one to seven intravenous injections of arsphenamin as suggested by Bokay. The chorea was of a few weeks' up to six years' standing. There was nothing to indicate syphilis in any of the families, except a positive Wassermann in one of the mothers.

Gaceta Médica de Caracas

32: 193-208, 1925

*Malaria in Venezuela. E. P. de Bellard.—p. 193.
*Bacillary Dysentery. E. P. de Bellard.—p. 196.
*Martenot's Sign of Apparent Death. Villegas Ruiz.—p. 198.
The Mosquitoes and Gnats of Venezuela. M. Núñez Tovar.—p. 203.

Malaria in Venezuela.—De Bellard relates that in the country around Lake Maracaibo the higher, well drained districts are free from malaria while in the lowlands, in spite of extreme prophylactic measures, including quinin daily, the malaria parasites were found in the blood of 48 per cent. of the workmen, and the disease seems much more tenacious than the malaria of the Mississippi Valley or Western Europe. One of the engineers was given daily 1 gm. of quinin by the vein and 4-5 gm. by the mouth for two weeks before the attacks were arrested and the arrest then was only for a few days. The attacks have recurred regularly since, rebellious to all treatment. De Bellard has obtained the best results with intramuscular injection of 1.5-2 gm. repeated in twelve hours every day, and for two days after the temperature is permanently normal. In his four years of service in the region, being consulted by about 1,000 persons every month, 50 per cent. of whom have syphilis, he has never encountered a case of general paresis. He regards this as testifying to an actual antagonism between paresis and malaria.

Bacillary Dysentery.—De Bellard states further that the mortality from bacillary dysentery in the region was regularly from 40 to 80 per cent. But in his last three cases all promptly recovered under castor oil treatment by Welch's method: 60 c.c. at once, and 4 c.c. every daytime hour the second and third day, repeating if necessary. None have developed dysentery among those vaccinated with Besredka's bile vaccine.

Blister Sign of Apparent Death.—Villegas Ruiz confirms the reliability of a test blister from a burn when the vital processes are merely in abeyance. In a cadaver the skin puffs up and bursts.

Medicina, Mexico City

6: 95-120 (Oct.) 1925

Treatment of Lumbago. C. Zuckermann.—p. 102.
*Treatment of Persisting Hiccup. C. Zuckermann.—p. 103.
Intravenous Calcium Salts in Pulmonary Tuberculosis. J. G. Monroy Velasco.—p. 109.
Sacralization of Lumbar Vertebra. W. López Albo.—p. 111.

Hiccup from Retention of Urine.—Zuckermann reports two cases in which an attack of influenza or exacerbation of alcoholic disease of the liver was accompanied with persisting hiccup. Both patients complained of scanty output of urine, and catheter evacuation of the bladder arrested the hiccup at once.

Prensa Médica Argentina, Buenos Aires

12: 497-532 (Oct. 20) 1925

*Hereditary Hip Joint Disease. H. Valls and J. Verbrugge.—p. 497.
Sympathetic Imbalance in Psoriasis. Castex and Camauer.—p. 503.
Prenatal Protection of Maternity. L. Bard.—p. 515.
The Organism's Fight Against Infections. L. La Porta.—p. 522.

Hereditary Origin of Coxa Plana.—Valls and Verbrugge give an illustrated description of three cases of coxa plana or deforming arthritis of the hip joint in which the father or younger members of the family had presented the same affection. They cite other instances of familial occurrence, and theorize that the hereditary factor is a predisposition. Under the influence of trauma, infection or nutritional or endocrine disturbances, the child develops osteochondritis, the adolescent, coxa vara, and the adult, arthritis deformans.

Revista Med.-Quir. de los Hospitales, Bogota

1: 1-44, 1925

The Typhoid Syndrome. J. M. Lombana Barreneche.—p. 8.
*Mixed Tumors of the Jaws. P. Martinez.—p. 9.
Lymphadenoma of the Neck. Garcia Maldonado.—p. 18.
Roentgenography of Gastric Cancer. M. Weiser.—p. 20.
Case of Aneurysm of the Aorta. A. Guzman.—p. 24.
Medical Education in Colombia. J. Vicente Huertas.—p. 26.

Mixed Tumors of the Jaws.—Martínez' illustrations show that these tumors may grow to the size of the head of an adult but still can be successfully removed. This was the case in the woman and the two men whose cases are described.

The tumors were a fibrochondroma or fibromyxoma, with or without sarcoma. He removed the entire jaw, and there has been no recurrence to date. In one case the tumor had been twenty years in growing to its enormous size.

Archiv für Verdauungs-Krankheiten, Berlin

36: 1-188 (Oct.) 1925

*Diet in Diseases of the Stomach. A. L. Molnar and O. Porges.—p. 1.
Indicanuria with Gastrocolonic Fistula. H. Steinitz.—p. 29.
*Intestinal Putrefaction. J. von Deschwanden.—p. 34.
*Contrast Test Meal. T. Bársony et al.—p. 76.
Gastric Sarcoma. M. Meischke.—p. 82.
*Action of Antacids. E. Silberstern and L. Pirk.—p. 86.
Gastric Digestion. J. Vándorfy.—p. 95.
*Clinical Aspect of Pancreas Necrosis. R. Tscherning.—p. 109.
Chronic Appendicitis. F. Ehrlich.—p. 114.

Diet in Diseases of the Stomach.—Molnar and Porges endeavor to obtain experimental evidence for the old experience as to the advantage of stale bread over fresh, and of the reciprocal favorable action of fat and bread, as well as of cheese and bread. The bread enhances the formation of an emulsion of fat, and increases the acidity of the stomach contents. Bread gets more finely divided when old or mixed with fat. The acidity of the stomach contents is higher with fresh bread, and evacuation is slower. The optimal acidity for digestion of cheese is reached sooner in the presence of bread.

Intestinal Putrefaction.—Deschwanden confirms the value of Rodella's putrimeter in diagnosis of intestinal putrefaction.

Contrast Test Meal.—Bársony, Friedrich and Wolf combined the 5 per cent alcohol test meal with a suspension of a barium salt. This enabled them to study the movements of the stomach while testing the secretion aspirated with a fine (duodenal) tube.

Action of Antacids.—Silberstern and Pirk conclude from their experiments that magnesium oxid and calcium carbonate, which do not dissolve readily in water, are preferable to sodium bicarbonate. The latter has a tendency to render the stomach contents alkaline.

Clinical Aspect of Pancreas Necrosis.—Tscherning's patient, a diabetic, responded well at first to small doses of insulin. Later on he became refractory to all the available brands. Necropsy revealed necrosis of almost the entire pancreas.

Deutsches Archiv für klinische Medizin, Leipzig

149: 1-128 (Nov.) 1925

Hemogram. M. Ernst.—p. 1.
*Hypertension. O. Müller and G. Hübener.—p. 31.
The Duodenal Tube. J. Jünger.—p. 54.
*Research on Urobilin. A. J. L. Terwen.—p. 72.
*Molting of the Blood. A. Lichtenstein and A. J. L. Terwen.—p. 102.
Urobilin of the Feces. A. Lichtenstein and A. J. L. Terwen.—p. 113.
*Action of Papaverin on the Stomach. Bársony and L. v. Friedrich.—p. 117.
Gastroscopy. W. Sternberg.—p. 122.

Hypertension.—Müller and Hübener confirm the existence of one type of hypertension on a purely vasoneurotic basis—without any disturbance of the kidney. This is the constitutional type with an important family history. Besides this they admit the exogenous hypertension due to an acquired nephritis or lesion of the arterioles. The nervous system and the condition of the capillaries deserve more attention in making the diagnosis.

Research on Urobilin.—Terwen publishes details of his method of quantitative determination of urobilin in urine and feces. He reduces it quantitatively to urobilinogen which is extracted and estimated colorimetrically. Urobilin prepared from such a solution of urobilinogen seems to be very pure. Its properties are described. Some previous communications on this subject were summarized in these columns Aug. 1, 1925, page 398, and Aug. 22, page 644.

Renewal of the Blood.—Lichtenstein and Terwen found 135 mg. of urobilin per day and 111 mg. per hundred grams of feces as the average, and 200 mg. per day as the maximum, in the feces of fifteen healthy persons. The excretion varies from day to day. Normal urine contains less than 1 mg. per day. Estimating the amount of blood in a normal adult (70 Kg.) at 3,500 Gm., with a hemoglobin content of 14 per cent, and figuring on the production of 21.1 Gm. of urobilinogen from 21.9 Gm. of hematin (contained in the amount of hemoglobin specified), and on the elimination of 150 mg. of urobilin per day, the whole blood is renewed in 140 days or less. (Eppinger concluded, from the secretion of bilirubin, in sixty to forty-three days.) They compare this normal speed of destruction with that of any given subject and call the ratio an index of the "molting" of the blood. Its formula is: $\frac{70}{P.} \times \frac{100}{Hb} \times \frac{Ur}{150}$ (P = weight in kilograms; Hb. = percentage of hemoglobin; Ur. = daily excretion of urobilin in milligrams). Other signs of increased wastage are the supravitally stained substance in more than 0.5 per cent of the erythrocytes, and the increased bilirubinemia.

Action of Papaverin on the Stomach.—Bársony and Friedrich found that papaverin had no influence on the tonus, peristalsis and evacuation or secretion of the stomach, nor on the action of the pylorus.

Jahrbuch für Kinderheilkunde, Berlin

110: 253-374 (Nov.) 1925

*The Habitus and the Pituitary in Children. E. Glanzmann.—p. 253.
*Active Immunization Against Diphtheria. W. Bayer.—p. 273.
Wilson's Disease. Brückner.—p. 284.
*Hemophilia. R. Feissly.—p. 297.
*Sugar of the Blood and Tissues. B. Steiner.—p. 309.

The Habitus and the Pituitary in Children.—Glanzmann observed eighteen cases of the syndrome described by Lederer and attributed to constitutional changes. He ascribes this increased tendency to obesity with hypoplasia of the sex organs, and usually rapid growth, to pluriglandular disturbances, with the pituitary as the most important. Some of these children show a habitus of the opposite sex. The teeth appear early, even with rickets. The testes descended in his cases after administration of a pituitary extract. Milk is to be restricted.

Active Immunization Against Diphtheria.—Bayer finds that the foundations for the T-A immunization are not yet as solid as they seem. He had good results with Böhme and Riebold's application of living diphtheria bacilli on scarified skin.

Hemophilia.—Feissly concludes from his experiments that the retarded coagulation time characteristic of hemophilia is due to some anomaly in the formation of serozyme (prothrombin) from proserozyme. He is inclined to attribute this to the presence of some stabilizing factor—perhaps Howell's heparin. Transfusion of citrated blood is the best treatment for hemophilia.

Sugar of the Blood and Tissues.—Steiner compared the sugar content of the blood and of the blister fluid in sixty children. The latter was higher in two children with diabetes, and lower in the majority of measles patients, and the two were nearly equal in adolescents with goiter.

Monatsschrift für Geb. und Gynäkologie, Berlin

71: 121-248 (Nov.) 1925

Incarceration of Retroflexed Pregnant Uterus. G. H. Schneider.—p. 121.
Application of Forceps to the Breech. A. Hermstein.—p. 125.
Treatment of Mastitis. L. Seitz.—p. 134.
*Vaginal Bacilli. R. Tateyama.—p. 136.
*Preventive Streptococcus Immunization. N. C. Louros.—p. 142.
Ophthalmia from Infected Abortion. W. Lüttge.—p. 156.
Mineral Mud Treatment of Gynecologic Inflammations. Butomo.—p. 160.
Collapsible Speculum. H. Sellheim.—p. 173.
Change of Myomas into Sarcomas. O. von Küttner.—p. 177.
Uterus Transplantation in Animals. Kakuschkin and Bykow.—p. 181.
Roentgen-Ray Treatment of Pelvic Inflammations. O. Bott.—p. 184.

Vaginal Bacilli.—Tateyama found in Japan large amounts of a pure culture of Döderlein's bacilli in the vagina in 90 per cent. of healthy women in the first or second month of pregnancy. They decreased in numbers later. Amenorrhea not due to pregnancy has a low degree of bacteriologic purity. He believes that the high first degree of purity is one of the signs of beginning pregnancy. In differential diagnosis, it speaks also for an extra-uterine pregnancy and against adnexal tumors. Larger numbers of vaginal bacilli testify in favor of appendicitis as against gynecologic inflammations in his opinion.

Preventive Streptococcus Immunization.—At Bumm's clinic, Louros has had further excellent results with preventive injections of a streptococcus vaccine or its combination with an antiserum. The latter was used only immediately before labor. He emphasizes, however, that the method prevents only the septicemia, not a local infection, which may be fatal.

Münchener medizinische Wochenschrift, Munich

72: 2043-2088 (Nov. 27) 1925

Preparation and Determination of Oxyhemoglobin. W. Autenrieth and K. Dorner.—p. 2043.
*Saprophytes and Tuberculin. J. E. Wolf.—p. 2045.
Injury from Blood Transfusion. E. Hempel.—p. 2046.
Silo Fodder and Silo Milk. Trumpp.—p. 2048.
Athletic Work and the Metabolism. P. Schenk.—p. 2050. C'td.
Examination of Competing Athletes. O. Huntemüller.—p. 2053.
Gymnastics as Shock Treatment of Tuberculosis. Reifenberg.—p. 2055.
*Dijodtyrosin and Metabolism. H. Beumer and B. Kornhuber.—p. 2057.
Prevention of Tuberculosis in Monkeys. Willies.—p. 2058.
Rectal Examination by Midwives. H. Baumm.—p. 2058.
*Defloration Cystitis. A. Narath.—p. 2061.
Gymnastics for Tuberculous Children. K. Nüssel.—p. 2065.
Occupational Injuries. II. Koelsch.—p. 2068.

Saprophytes and Tuberculosis.—Wolf observed inhibition of the cutaneous reaction when "Old Tuberculin" was mixed with various nonpathogenic germs, such as Much's cytolyticus. The reaction to partial antigens—including the water-soluble—was intensified.

Dijodtyrosin and Metabolism.—Beumer and Kornhuber saw no increase in creatin elimination in children taking 1.5-3 Gm. of this substance. It was without any effect in a case of true myxedema, which responded well to thyroid treatment.

Defloration Cystitis.—Narath examined twenty-three women with cystitis following defloration. Only 30 per cent of them were due to bacterial infection (mostly colon bacillus); the rest was rather an injury than a cystitis. A large percentage —especially of the first group—admitted masturbation.

Zeitschrift für Tuberkulose, Leipzig

43: 441-506 (Nov.) 1925

*Occupational Infection with Tuberculosis. Braeuning.—p. 441.
The Chest in Tuberculous Children. H. Götz.—p. 450.
Muscle Spasms in Tuberculosis. P. Wiessner.—p. 455.
*Results of Pneumothorax Treatment. D. Epstein.—p. 463.
Treatment of Tuberculosis with Methyl Antigen. F. v. Kováts.—p. 468.
Urochromogen Reaction. W. Grossmann.—p. 475.
Turbidity Test for Syphilis in the Tuberculous. E. Hager.—p. 477.
Silicic Acid-Calcium Treatment of Tuberculosis. M. Kärcher.—p. 482.
Japanese Tuberculosis Congress. R. Arima.—p. 483.

Occupational Infection with Tuberculosis.—Braeuning publishes his expert testimony on a few cases of infection acquired in the treatment of tuberculous persons.

Pneumothorax in Tuberculosis.—In the course of ten years Epstein treated 204 patients with artificial pneumothorax and 7 per cent were cured; 10 per cent improved; in 39 per cent the treatment was discontinued because of the wish of the patient, and in 14 per cent for other reasons.

Zeitschrift für Urologie, Leipzig

19: 801-880, 1925

Kidney Insufficiency with Hypertrophied Prostate. Von Illyès.—p. 801.
Treatment of Mechanical Uremia. H. Picard.—p. 808.
Madder Root in Treatment of Cystitis. W. Saupe.—p. 810.
History of the Catheter. E. Ebstein.—p. 813.
Diagnosis of Cystic Kidney. F. Herzog.—p. 815.
Lithiasis of Ureter. C. Perrier.—p. 819.
Kidney Tumors. Wossidlo.—p. 829.
*Lumbar Laparotomy. Von Lichtenberg.—p. 830.
*Tumor or Nephritis. Stutzin.—p. 832.
Essential Hematuria. Casper.—p. 835.
Infectious Gangrene of Scrotum and Penis. Bitschai.—p. 837.
Surgery of Double Kidney. Siedner.—p. 842.
Strictures of Vesical Orifice of Ureter. Heckenbach.—p. 845.
"Surgical Treatment of Nephritis." M. Zondek.—p. 850.

Lumbar Laparotomy.—Lichtenberg recommends this method in intra-abdominal complications of surgical diseases of the kidneys.

Tumor or Nephritis?—Stutzin's patient had a high blood pressure, hyaline casts and attacks of hematuria. The urine became normal and the blood pressure went down after extirpation of a hypernephroma.

Zentralblatt für Gynäkologie, Leipzig

49: 2593-2640 (Nov. 14) 1925

*Leukorrhea. P. Zweifel.—p. 2593.
*Gynecologic Research on Neoplasms. A. Greil.—p. 2595.
Unusual Site of Ovary. W. Lubosch.—p. 2608.
Brow Presentation. F. Jess.—p. 2609.
Psychotherapy in Gynecology. G. v. Wolff.—p. 2612.
"An Ovarian Hormone." A. Lipschütz.—p. 2621.
Cesarean Section in Edema of the Vulva. J. P. Greenhill.—p. 2623.

Leukorrhea.—Zweifel has been using a 2 per cent. solution of silver nitrate in vaginal leukorrhea. He pours it in through a cylindric speculum, which he keeps moving to and fro until the vagina contracts to hold it. Since 1910 he has been supplementing this with a douche with a 0.5 per cent. solution of lactic acid.

Gynecologic Research on Neoplasms.—Greil wants every student of cancer to go first to the school of the gynecologist and the embryologist. The gynecologist holds the key to the cancer panacea. The implantation of the ovum and placentation are the fundamental special case for the study of neoplasms. The only hope to prevent cancer is in the prenatal care in respect to the fetus—the only thing the physician can hope to influence. A prenatally acquired predisposition to tumor formation cannot be dispelled later.

49: 2641-2688 (Nov. 21) 1925

Phosphoric Acid in Vaginal Secretion. H. Rossenbeck.—p. 2641.
*Retraction and Hemostasis Post Partum. J. Wieloch.—p. 2644.
*Action of Insulin in the New-Born. E. Vogt.—p. 2652.
Determination of Age of Fetus. V. Rubeška.—p. 2671.
Treatment of Asphyxia of the New-Born. M. Litwak.—p. 2676.
Phototherapy of Hemorrhages. A. Landeker.—p. 2677.
Primary Cancer of Vagina. H. Bock.—p. 2681.

Retraction of Uterus and Hemostasis Post Partum.—Wieloch observed that a comparatively low pressure of the water in irrigation of the uterus post partum was apt to distend the organ. Yet it did not cause any hemorrhage, and the uterus retracted, afterwards, immediately.

Action of Insulin in the New-Born.—Vogt reduced the physiologic loss of weight in the first days of life by injection of small doses of insulin. This speaks for the theory attributing the loss in weight chiefly to disturbances of the water metabolism. Insulin acts well in dystrophia of the new-born.

49: 2689-2752 (Nov. 28) 1925

Contracted Pelvis. W. Zangemeister.—p. 2690.
Blood Sugar in Mother and Fetus. K. Hellmuth.—p. 2691.
Menstrual Recurrences of Herpes. A. Niedermeyer.—p. 2694.
Menstruation with Ovarian Cancer. H. O. Neumann.—p. 2695.
*Traumatic Retroversioflexion. W. Raaflaub.—p. 2706.
Fatal Prolapse of the Uterus. S. Böhm.—p. 2715.

Traumatic Retroversioflexion.—Raaflaub regards tenderness of both inguinal regions as a typical symptom of traumatic retroversioflexion of the uterus.

Zentralblatt für innere Medizin, Leipzig

46: 1113-1136 (Nov. 21) 1925

*Incipient Insufficiency of the Kidneys. O. E. Guttentag.—p. 1114.

46: 1137-1168 (Nov. 28) 1925

Indicanemia and Uremia. O. Klein.—p. 1137.

Incipient Insufficiency of the Kidneys.—Guttentag found that an increase in the uric acid content of the blood is frequently the first and the last sign of insufficiency of the kidneys. Yet it cannot serve as a substitute for determination of the residual nitrogen, or, which is still better, of the urea, because it is quite independent of the insufficiency. Besides this, the increase in uric acid in the blood is not proportional to the insufficiency, and it stops at a certain point.

Časopis lékařů českých, Prague

64: 1681-1716 (Nov. 21) 1925

Epilepsy with Myoclonia. J. Pelnář.—p. 1681.
Fetishism. V. Vondráček.—p. 1682.
Demelin's Forceps. F. Krecar.—p. 1688. C'td.
Hydro-Electric Bath and the Blood Pressure. Zoubek.—p. 1692. C'td.
Radium Therapy. F. Tománek and M. Ort.—p. 1696.
*Epidemic Herpes Zoster. Tichý.—p. 1704.

Epidemic Herpes Zoster.—Tichý observed within a few weeks thirty-five cases of herpes zoster in adults in one small town.

Vestnik Roentgenologii i Radiologii, Leningrad

3: 233-302, 1925. Partial Index

*Biologic Action of Roentgen Rays. M. Nemenoff.—p. 233.
Effect of Roentgen Rays on Arterial Pressure. N. Panoff.—p. 239.
*Influence of Roentgen Rays on Gastric Secretion. A. Yugenburg.—p. 247.
*Roentgen-Ray Therapy of Syringomyelia. B. Sharapoff.—p. 275.
Radiotherapy of Tuberculosis. R. Gasul.—p. 281.
Osteochondromatosis of Shoulder Joint. V. Osinskaya.—p. 293.

Biologic Action of Roentgen Rays.—Nemenoff concludes from personal observations and study of the literature that the roentgen rays cause a rapid exhaustion of the cells: the older the cell, the more sensitive to their action. Mitosis is a sign of cell senescence, and this may be induced by the roentgen rays through disturbances of the cell metabolism.

Influence of Roentgen Rays on Gastric Secretion.—Yugenburg experimented on dogs with a fistula in the prepyloric region. Small or therapeutic doses of roentgen rays first increased the gastric secretion, including that of hydrochloric acid; then reduced it temporarily. Large doses increased the secretion; a single dose of 5 H. produced an ulcer of the stomach, resembling round ulcer in man, while not causing ulceration of the skin. The gastric mucosa seemed to be only slightly sensitive to the rays, since repeated medium doses caused only insignificant lesions. The mucous membrane of the small intestine proved highly susceptible to the rays; even small doses caused ulceration.

Roentgen Ray Treatment of Syringomyelia.—Sharapoff applied roentgen-ray treatment in fourteen cases of syringomyelia. The abnormal sensibility improved after three or four exposures. In five the skin anesthesia disappeared completely; in the others, only partially. The sense of temperature approximated normal after five or six exposures; exceptionally, after four or eight. Simultaneously the muscles became stronger and the motor disturbances improved. The dynamometric force of the hands changed from 1 or 2 Kg. before, to from 10 to 30 Kg. after the treatment. One patient, who usually fell two or three times in walking about thirty paces, after the treatment was able to walk three blocks without assistance. A dose of 1 or 2 H. at a distance of 18 cm. was applied to the affected area. Six weekly irradiations represented a series, repeated at intervals not exceeding a month. The action of the roentgen ray may be due to the phagocytosis induced as well as to the destruction of the gliomatous tissue.

Finska Läkaresällskapets Handlingar, Helsingfors

57: 833-928 (Oct.) 1925

*So-Called Retroperitoneal Lipomas. A. Krogius.—p. 833.
Psychiatry and Neurology's Mutual Dependence. H. Fabritius.—p. 854.
*The Purpura Question. D. von Wendt.—p. 865.
*Narcotics and the Blood Serum. E. Hisinger-Jägerskiöld.—p. 880.

Retroperitoneal "Lipomas."—Krogius relates that the tumor in one woman of 51 had developed within about two years but the general condition was good and there had been no hematuria. The tumor measured 36 by 30 by 15 cm. and weighed 6,150 gm. It shelled out without much trouble or hemorrhage. These retroperitoneal growths are of mesenchymal origin, and may contain all kinds of connective tissue. They should be removed by the same route as a kidney tumor, not by a laparotomy. In operating, great caution is necessary to refrain from injuring the kidney, but the main thing is to recognize and remove the tumor early, before it reaches such a dangerous size. An exploratory laparotomy during the first year in his case had shown the retroperitoneal site, but no attempt was made to reach it from the rear. Of the 165 cases on record, only 28 per cent were in men. One of the six children in the list was not operated on till his seventh year although the tumor had been noted at the age of 2 weeks. The tumors had grown from the adipose capsule or pararenal fat in 58 per cent and from the mesentery in 20 per cent. Some weighed up to 20-30 Kg. and the tumors were multiple in some cases. Some are soft, some hard or with hard bunches, but they have a capsule and are not very vascular. In twenty-five of 113 operative cases, the adherent kidney was removed, but Krogius thinks this was unnecessary and might have been avoided if the true site of the tumor had been recognized. These tumors sometimes give the false impression of fluctuation, but this is corrected by deep palpation.

The Purpura Question.—The case described by Wendt seems to confirm Glanzmann's assumption that purpura is almost invariably of anaphylactoid nature. She thinks a toxin acting on the capillaries was responsible in her case.

Calcium and Phosphorus in the Blood Serum During the Action of Narcotics.—No change in the phosphorus content of the blood serum was observed in fifteen medical students after test injection of eight different narcotics. The calcium content rose in some, dropped in others, and was unmodified in another group. The data presented indicate that during a tranquil mental state the calcium content declines.

Ugeskrift for Læger, Copenhagen

87: 981-996 (Nov. 5) 1925

*Morphin Addiction. A. Wimmer.—p. 981. C'en.—p. 997.
*Pelvic Neuralgia. E. Hauch.—p. 984.
Silver Nitrate in Treatment of Gonorrhea. B. Pontoppidan.—p. 986.
Conference on Biologic Standardization of Drugs. A. Krogh.—p. 987.
*Anticonception Technic. J. H. Leunbach.—p. 989.
Prohibition in Finland. R. Oppermann.—p. 990.
Henry Ford's Hospital in Detroit. J. Lau.—p. 991.

87: 997-1022 (Nov. 12) 1925

Tuberculin in Treatment of Asthma. R. Østergaard.—p. 1001.
Sterility of Preparations of Insulin. V. Riemke.—p. 1003.
Erythema Nodosum in Relation to Tuberculosis. A. Brems.—p. 1008.
Work of the Medicolegal Institute. J. Fog.—p. 1012.

87: 1023-1048 (Nov. 19) 1925

Sanocrysin in Pulmonary Tuberculosis. V. Bie.—p. 1023.
Gold Deposits in Sanocrysin Treatment. H. Hansborg.—p. 1033.
Reexamination After Sanocrysin Treatment. P. Kühnel.—p. 1036.
Small Doses in Sanocrysin Treatment. G. E. Permin.—p. 1037.
The Prognosis with Hypertension. R. Ehrström.—p. 1038.

Morphin Addiction.—Wimmer thinks that there is always a psychopathic basis for chronic morphin addiction and that this must not be overlooked in treatment. In diagnosis, myosis with weak reflexes to light is instructive, but he had one inveterate morphin patient with extremely dilated pupils. Emaciation without other known cause is suspicious, as also sudden changes from apathy to alertness. Libido and potency are usually partially or completely abolished, and sexual delinquencies are rare except possibly development of homosexual tendencies. In case of a crime, years of morphin addiction, or an acute morphin intoxication or disturbances from abstention or from complicating cocain or alcohol must be regarded as attenuating the responsibility to a certain extent. He warns that medical men, druggists, nurses and midwives addicted to morphin often display a tendency to force morphin on other persons. Dupouy has told of a country practitioner who was responsible by this proselyting spirit for 200 instances of chronic morphinism among his patients.

Pelvic Neuralgia with Gynecologic Affections.—Hauch explains how pelvic neuralgia and neuritis are liable to confuse the clinical picture even when they have no direct connection with the primary cause. The patient winces with pressure on tender points in the course of the nerve. She must not be asked whether she feels pain at these points; her involuntary reaction is more instructive. The case should not be labeled "hysteria" until all the possible tender points have been investigated. Organic changes in the genital organs are generally responsible for the neuralgia or neuritis and the latter may persist after the cure or removal of the pathologic tube, ovary or uterus responsible for it. He recommends rest in bed, local heat, and thirty to forty-five minutes of flushing of the vagina with 30-40 liters of water at 40-45 C. At some spas, 80 liters are used for the irrigation, the patient lying in a full warm bath. He remarks that the benefit reported from diathermy is probably due in large part to the effect on the neuralgia or neuritis element. The high frequency current has given very encouraging results in his hands (seven cured and three much improved in ten cases completing the course). The neuralgia may recur months later, but yields readily to renewed treatment.

Anticonceptional Measures.—Leunbach's experiments with spermatozoa in vitro demonstrated that fat particles push the spermatozoa aside and prevent action on them from disinfectants in a suppository. Every disinfectant solution arrests the movements of the spermatozoa at once, but in pure water they retain their movements for several minutes.